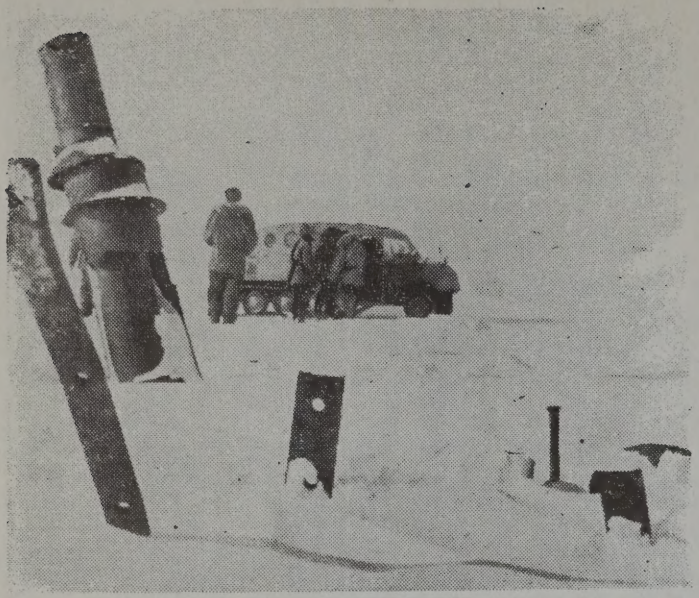
THE POLAR TIMES

Official United States Navy

Sno-Cats Hit the Traverse Trail



ABANDONED SHIP FROZEN IN ARCTIC ICE

Americans assigned to DEW (Distant Early Warning) Line operations in the Arctic visit Cambridge Bay, Canada, where the rusted smokestack and iron supports of an abandoned ship thrust above the snow-covered ice. The ship is the Maud, in which Roald Amundsen, Norwegian explorer, tried in 1918 to find the Northwest Passage.

Dr. Paul A. Siple, left, presents scroll of Honorary Membership to Capt. Finn Ronne, USNR, at American Polar Society's 25th anniversary dinner in Washington, D.C., on February 6.

Prof. Edward C. Sweeney, left, presents globe to August Howard marking his 25 years as Secretary of the American Polar Society and Editor of The Polar Times as Capt. Finn Ronne, USNR (left, rear) and Dr. Paul A. Siple look on.

The Polar Times

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No. 50. JUNE 1960.

Capt. Finn Ronne Honored by Polar Society

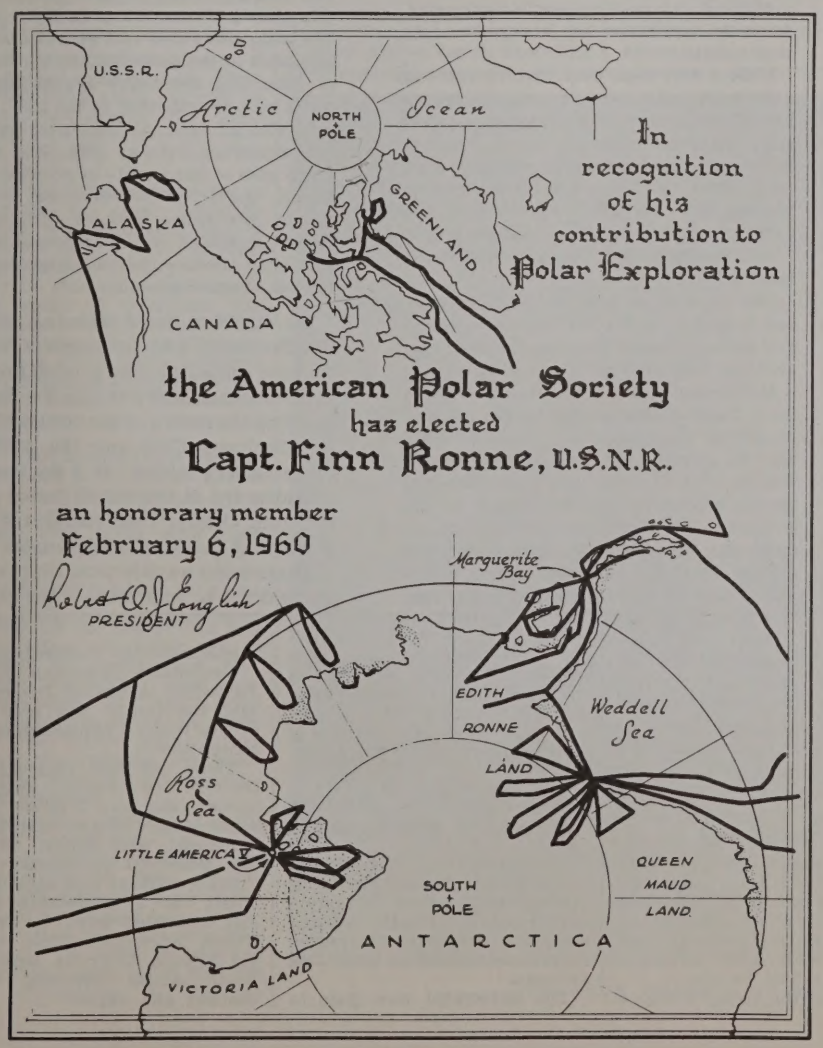
SPEECH
OF
HON. FRANCIS CASE
OF SOUTH DAKOTA
IN THE SENATE OF THE UNITED STATES
Tuesday, February 9, 1960
Congressional Record

Mr. CASE of South Dakota. Mr. President, last Saturday night the American Polar Society and the Washington group of the Explorers Club joined in observing the 25th anniversary of the Polar Society with a dinner at which Capt. Finn Ronne, Antarctic explorer, was the guest of honor.

Captain Ronne, who has made four year-long trips to the Antarctic, was awarded the Polar Society's honorary membership, a recognition given to only seven others in its history. He was the scientific and military leader for the unit of the U.S. participation in the International Geophysical Year that established Ellsworth Station at the head of the Weddell Sea.

The feature of the evening was Captain Ronne's presentation of an epic motion picture of that latest expedition, accompanied by his own brilliant narration of the incidents recorded by color film.

Highlights were the battle of the U.S.S. *Wyandotte* against the polar ice, the intimate glimpses of team life during the longer winter night while carrying on regular observations of weather and atmosphere, a series of candid shots of whale, seals, and penguins found in the Antarctic, and a heroic flight to take emergency gasoline to Sir Vivian Fuchs that made possible his overland trek to the South Pole.



The Senate can rightfully take special pride in the accomplishments of the International Geophysical Years as it was a resolution by the Senate's Armed Services Committee which gave the signal of approval for the Department of Defense, and notably the Navy, to supply personnel and equipment for the operations carried on under Rear Adm. George Dufek, and of which the units led by Dr. Paul A. Siple and Captain Ronne were such notable elements.

I personally appreciated the privilege of presenting that resolution on the suggestion of the distinguished senior Senator from Virginia [Mr. BYRD], and the distinguished senior Senator from Massachusetts [Mr. SALTONSTALL], as a replacement for an earlier bill I had introduced to authorize an expedition to be led by Captain Ronne.

This was in 1954 and the resolution, to be found in the proceedings of the Armed Services Committee for July 29, 1954, was duly transmitted to the President and the Department of the Navy to assure the executive branch of the committee's interest in and desire for Antarctic exploration.

Saturday night's anniversary banquet for the American Polar Society was held at the Cosmos Club, with the Honorable Edward Cleaveland Sweeney, chairman of the Washington group of the Explorer's Club as master of ceremonies, and Capt. Eiliott B. Roberts as chairman of the program committee.

Dr. Paul A. Siple, also a veteran of the Antarctic, and famed as the Boy Scout on an early Byrd Expedition, who had known Captain Ronne's father, Martin Ronne, veteran Norwegian polar explorer, made the presentation of the illuminated membership scroll to Ronne. Dr. Charles B. Hitchcock, president of the Explorer's Club, welcomed the guests, and presented a very fine globe of the earth to August Howard in recognition of his 25 years' service as secretary of the American Polar Society.

The Polar Society issued a statement in connection with the ceremonies which I ask unanimous consent to have printed at this point in my remarks.

There being no objection, the statement was ordered to be printed in the RECORD, as follows:

NEWS RELEASE OF AMERICAN POLAR SOCIETY
FEBRUARY 6, 1960

Capt. Finn Ronne, USNR, of 6323 Wiscassett Road NW., Washington, D.C., who in 1947 discovered the world's last coastline facing the Weddell Sea in Antarctica, tonight, receives an illuminated scroll making him the eighth honorary member of the American Polar Society of which he is a vice president.

Dr. Paul A. Siple of 131 North Jackson Street, Arlington, Va., Antarctic explorer and scientific leader of the IGY's South Pole station in 1957, presents the scroll to Captain Ronne at the society's silver aniversary dinner at the Cosmos Club, 2121 Massachusetts Avenue NW., Washington, D.C.

Captain Ronne's discovery of Edith Ronne Land at the head of the Weddell Sea eliminated the possibility of a strait dividing Antarctica. Some 250,000 square miles of newly discovered land are included in the 700,000 square miles his party covered by trimetrigon photography.

Captain Ronne was on the second Byrd Antarctic Expedition of 1933–35; U.S. Antarctic Service Expedition, 1939–41; and was the scientific and military leader of the IGY Ellsworth Station the first year of its operation in 1957.

Seven honored earlier as honorary members were: Brig. Gen. David L. Brainard, of Washington, D.C., last survivor of the Greely Arctic Expedition of 1831–84, on his 80th birthday in 1936; Adm. Richard E. Byrd in 1938; Dr. Vilhjalmur Stefansson in 1940; Dr. Lincoln Ellsworth in 1944; Prof. Frank Debenham, founder of the Scott Polar Research Institute at Cambridge, England, in 1949; Dr. Paul A. Siple of Arlington, Va., who received his honorary membership scroll at the South Pole, December 1, 1957, when he completed his year of duty there, and Miss Louise A. Boyd, of San Francisco last June, leader of eight Arctic expeditions including one to the North Pole in 1955.

Captain Ronne's scroll is signed by Rear Adm. Robert A. J. English, U.S. Navy, retired, of San Gabriel, Calif., as president of the society. He was on the second Antarctic expedition of 1933–35.

Mr. CASE of South Dakota. Responding to the presentation by Dr. Siple, Captain Ronne made some interesting observations on changes in polar exploration and the significance of U.S. participation in the International Geophysical Year. I ask unanimous consent that his remarks may appear at this point in the RECORD.

There being no objection, the remarks were ordered to be printed in the RECORD, as follows:

REMARKS BY CAPTAIN RONNE

Thank you very much, Paul, for your kind and nice remarks.

This scroll and the thought that motivated it is very much appreciated. It has a particularly deep and significant meaning to me because it was voted upon by the 23 members who compose the board of governors of the American Polar Society, nearly all of whom have actively participated in some form of polar work. Because of their unanimous backing, I am proud to accept this scroll and join their list of honorary members.

I grew up with polar exploration. At first the interest was through my father's close connection with Roald Amundsen and I followed the gradual progress of man's conquest of the unknown and the great personalities who played leading roles in this drama. My personal contacts with such men as Amundsen, Nansen, Sverdrup, Ellsworth, Arctowski, Byrd, Wilkins, and Stefansson are treasured memories now.

Although my training was in engineering, Antarctic exploration has always been my vital interest.

Since I first went with Byrd in 1933—as a ski expert and dog drives, I have been a part of the development of modern exploration. As Paul Siple will agree, the explorers tools have changed radically since then. The dog team has given way to tractors and airplanes. With my friend, Carl Eklund here, we once sledged almost 1,300 miles in 84 days behind a pair of dog teams.

The three of us here tonight Carl, Paul, and I are among the few oldtime explorers still kicking around who can remember how slow and tough the going was then.

Mechanization has made dog power obsolete. Furthermore, polar activities are now supported by Government appropriations. My own private modestly furnished expedition in 1946–48 undoubtedly was the last private expedition ever to venture to the Antarctic. As a result of the present-day onslaught, the aroma of polar exploration and its adventure has faded away. Where only a handful of men once struggled independently to solve mysteries looming over the horizon, now, every year thousands of men are in action.

The impact which the International Geophysical Year made on opening up the Antarctic should not be underestimated.

It provided the necessary wedge to renewed interest on an international scale undreamed of by the pioneers. As a result, scientists from many nations are accumulating vast amounts of knowledge from the world's last unknown continent. Huge logistic task forces provide the support for the detailed scientific cleanup job.

These worthy objectives have also been materially aided by the new international treaty on the Antarctic recently signed here in Washington. As part of this agreement, the claims of individual nations will no longer be a political deterrent to the furtherance of the scientific investigations which we trust will be of future benefit to all mankind.

Those who have watched this transition cannot help but be moved by the tremendous forward strides made in the last few years. As the pioneering era ends in the Antarctic, men with similar spirit today are turning their eyes to outer space. However, I might add that my calling to search for new horizons ends right here on terra firma.

In closing I want to express my appreciation to the many men with whom I have been associated in the polar field during the past 26 years and specifically acknowledge the trojan task accomplished by the small group of 23 who wintered with me on my own private expedition back in 1947. And finally, I also wish to pay tribute to my wife, Edith Ronne, "Jackie" as you know her, who has sledged the entire distance with me on smooth as well as over the roughest terrain, and who accompanied the expedition of 1946–48. I thank you all.

Mr. CASE of South Dakota. Finally, Mr. President, I ask unanimous consent that the contents of the printed program may appear at this point in the RECORD, carrying the names of the officers of both the Explorers Club and the American Polar Society, noting, as I do, that our colleague the distinguished junior Senator from Oregon [Mr. NEUBERGER] is a member of the board of governors.

There being no objection, the program was ordered to be printed in the RECORD.

SOUTH POLE TREATY SENT TO THE SENATE

WASHINGTON, Feb. 15 (UPI)—President Eisenhower sent to the Senate for ratification today treaties dealing with peaceful uses of the South Polar region and the dumping of oil into the sea by ships.

The Antarctic treaty bans military installations and nuclear stockpiling and cuts off future territorial claims there. The United States, Russia and ten other nations signed the treaty here Dec. 1.

Seven of the twelve nations have claimed large parts of Antarctica and will still have limited sovereignty there, but the treaty requires them to allow unlimited access to scientific and technological teams.

The treaty is an outgrowth of the recent International Geophysical Year during which all twelve countries carried on cooperative studies in the region. It was drafted after almost a year and a half of talks.

In effect, the treaty makes a scientific reserve of the continent, which has an area as great as that of United States and Europe combined.

ANTARCTIC PACT GAINS

Senate Panel Backs 12-Nation Treaty for Explojtation

WASHINGTON, June 21 (AP) —The Senate Foreign Relations Committee approved Tuesday a twelve-nation treaty setting aside the Antarctic for peaceful purposes under an inspection system.

The agreement now goes to the Senate for ratification.

Committee Chairman J. W. Fulbright, Arkansas Democrat, said the treaty had been approved without opposition in the committee.

There had been vigorous opposition in public hearings earlier from two Western Senators—Clair Engle, California Democrat, and Ernest Gruening, Democrat of Alaska.

Other nations that signed the treaty at a conference here last December were the Soviet Union, Argentina, Chile, Britain, France, Australia, Belgium, South Africa, Norway, New Zealand and Japan.

ATOM CITY'S CORE BEING DUG IN ICE

100 Men and a Dog to Live in Buried Experimental Town in Greenland

CAMP TUTO, Greenland, June 2 (Canadian Press)—The nucleus of an atomic-powered city is being constructed inside Greenland's polar icecap within 900 miles of the North Pole.

One hundred men and a dog will move in next fall to spend the winter there. They will have hot and cold water and flush toilets and walk on streets below the surface of the ice cap.

One of their maintenance jobs will be to shave the walls of the streets periodically. Snow tends to flow like bread dough and fill in cavities. Without shaving, thoroughfares might gradually narrow and eventually close up.

Some of the United States Army Engineers engaged in carving out the sixteen streets believe the experiment may point the way to survival in the event of a nuclear holocaust.

"We are convinced," one of the project officers said "that we can build cities the size of Washington inside the polar icecap. We know we are capable of storing grain here for 1,000 years."

But the technicians prefer to emphasize the purely scientific aspects, such as examination of ice cores, of work in the community called Century.

To be located on the northwest coast of Greenland 138 miles east of this United States military research camp, Century will have about thirty prefabricated buildings, including dormitories, cafeteria, gymnasium, workshops and recreation centre.

A 1,500-kilowatt nuclear reactor, built in the United States at a cost of $6,300,000, is being hauled over the polar ice in freight cars fitted with huge sled runners. It will have sufficient fuel, about 200 pounds, to provide light and heat for about two years.

Trenches for the streets and passageways are being dug to a depth of twenty-seven feet. Arched corrugated steel will serve as roofs and then a five-foot layer of snow will be blown over the whole area. Snowstorms will increase the layer by about three feet a year, engineers estimate.

The only entrance to the buried community will be through hatches leading to circular staircases. From time to time, the men may come to the surface but winter polar conditions discourage promenading. Winds of 185 miles an hour and temperatures 60 below zero are not uncommon. Maintenance crews will be rotated every four months on the average.

"But the men will be snug in their city," said an officer. "The air will be clear of dust. It will be a paradise for those who suffer from hay fever and other allergies."

First inhabitants, to move in Oct. 1, will be carefully selected. Men who show signs of wanting to escape their environment or display mental quirks will be rejected.

There will be problems. Greenland is Danish territory and the United States bases, operating under a bilateral agreement, will be permitted to dispose only of low-yield atomic waste in the Arctic area. High-yield waste will have to be hauled out and shipped all the way back to the United States for disposal.

Temperatures will have to be regulated. Too much heat could cause snow walls to buckle. Buildings, insulated to prevent escape of heat, will be kept at 60 above.

The main thoroughfare of 1,000 feet and the side streets ranging from 500 to 800 feet will be kept at no more than 20 above zero.

ICE CAP WATER SYSTEM

U. S. Unit to Be Supplied by Steam Drill Through Ice

WASHINGTON (Science Service)—Two hundred soldiers and scientists who will spend next winter under Greenland's ice cap will drink water from wells drilled through snow and ice with steam.

The United States Army Engineer Research and Development Laboratories at Fort Belvoir, Va., has developed the new method.

Previously water was obtained by melting snow and ice, but this was costly and surface snow might be contaminated.

With the new system, a bit using steam at 377 degrees Fahrenheit drills to about 150 feet or until homogenous ice structure is reached. Then a second bit that shoots jets of steam sideways is used to melt a bell-shaped reservoir up to fifty feet in diameter, from which water is pumped.

The well system will be used for Camp Century in which, for the first time, men will spend the winter months buried in the Greenland Ice Cap. To build Camp Century, snow plows dig tunnels that are roofed with steel arches and covered with snow. Prefabricated buildings are then assembled within the tunnel.

ATOMIC PLANT SHIPPED

Prefabricated Unit to Supply Greenland Base for Year

BUFFALO, June 23 (AP)—A prefabricated nuclear plant, capable of supplying a military base with power for a year, was shipped today to Greenland.

It will be installed at Camp Century, a base of the Army's research and development center. The plant, using 600 gallons of nuclear fuel, can supply both heat and power. More than 850,000 gallons of Diesel fuel would be required to do the same job.

The reactor was built by Alco Products, Inc., at its plant in Dunkirk, N. Y.

Radar Base Warns Eskimos

THULE, Greenland, May 19 (Reuters)—Eskimos have been warned not to hunt or fish in a fifteen - square - mile area around a huge United States radar station here because of danger from radiation. The radar base is one of a chain of stations designed to warn the United States of attack by long-distance rockets over the North Pole.

Largest of the Canadian Arctic islands, Baffin covers 183,000 square miles.

Down below, tunnels of ice make military streets.

Research Group Winters in Igloo

By Reuters

Copenhagen

Six men in a plastic igloo are spending one of the loneliest winters on earth, buried deep under the snow, in the heart of Greenland's windswept mountains.

For eight months this group of three natural scientists, an Army officer, a mechanic, and a doctor have been living, snug and warm, in their tiny underground home, making weather measurements.

They volunteered to stay behind and spend the winter in Greenland when the main party of a European expedition left the icecap last July, after carrying out a summer survey for the International Committee for Snow and Ice.

The expedition, led by the veteran French polar explorer, Dr. Paul-Emir Victor, consisted of 70 experts from France, West Germany, Austria, Switzerland, and Denmark. During the summr months, they carried out the main field work of the glaciological survey, splitting up into two teams, criss-crossing several hundred miles of glaciers in their snow tractors, photographing and taking minute measurements as they went.

When they left, the six men stayed behind in the middle of the icecap to take winter weather readings throughout the long Arctic night and make a more detailed, 12-month survey of one section of the snow-covered central mountain range.

The leader of this small party is Capt. Marcel de Lannourier, a French Army officer who was given special leave to take part in the international expedition. There are three other Frenchmen in the team, Prof. R. Schneider, a glaciologist, M. C. Marinier, a mechanic, and Dr. H. Sypiorski, a physician.

The other two are a Swiss glaciologist, Fritz Brandenberger, and a West German meteorologist, Dr. O. Rheinwarth.

In spite of their isolation, they are in radio contact almost every day with Dr, Victor's office in Paris. A radio station at Søndre Strømfjord, on Greenland's west coast, relays messages and weather observations from a high-powered transmitter in the igloo to \France.

The members of the party say they are "fit and well, but are now looking forward to summer" after eight months of living and working in the little laboratory, warmed by oil stoves, and eating canned foods.

The igloo has two floors and was specially designed for the maximum conservation of warmth and the best possible protection against weather on the surface. It was set up last summer, after a 683-mile journey from Søndre Strømfjord.

Some of the equipment needed by the expedition was hauled over the icecap by "weasel" tractors, the rest, including the motor-driven snow-plow which dug out the cavity for the igloo, was dropped by parachute.

The design and heating system of the igloo has proved so efficient that the members of the wintering party have felt no discomfort, although on the icecap above them arctic gales have been sweeping over the mountains and the temperature in February, the coldest month, dropped as low as 76 degrees (Fahrenheit) below zero.

The party's chief task is to study the weather. By examining the different ice layers glaciologists can chart the course of weather changes in the past.

To do this, the team has dug out a 130-foot-deep shaft under the igloo. From this, samples of ice going back through the years are brought up for examination under the microscope in the laboratory.

Dr. Børge Fristrup of Copenhagen, vice-president of the International Committee for Snow and Ice, who took part in the summer survey, has explained that the weather is "deep-frozen" into the layers of snow in the form of tiny amounts of radioactive carbon-14 from the carbon dioxide in the atmosphere which is trapped in every snowflake. "To discover what the weather was like when a particular snowfall occurred, we measure the radioactive carbon in each snow section," he said.

The world's weather is affected greatly by the Greenland icecap, and tremendous changes would occur if the Northern Hemisphere's improved climate of recent years continued so that the icecap gradually melted.

The liquification of the huge mass of ice covering Greenland would mean a rise of betweer 23 to 33 feet in the water level of the oceans.

"That is, broadly speaking, why we are putting the icefields and glaciers under the microscope," Dr. Fristrup said. "The expedition has been building up a sort of 'profile' of the Greenland ice. In 10 years' time or so, another expedition will go to Greenland, and cover the same ground, to see how this profile has changed."

Trademark Designed For Eskimo Carvings

OTTAWA.—A trademark has been designed for Canada's Eskimo artists to use on their carvings. It depicts an igloo—the Eskimo's traditional form of shelter and protection—and bears the words, "Canadian Eskimo art."

It was designed to distinguish the Eskimos' original form of art from foreign imports and mass-produced imitations. The carvings, made at isolated communities scattered throughout the Arctic, last year brought revenues of more than $100.000 to the Eskimos.

NEW BASE IS BUILT TO SPOT MISSILES

Thule, One of 3 Giant Radar Outposts, Has 'Brains' to Relay Data in Seconds

THULE, Greenland, May 16 (UPI) — Successful tests have been conducted in this remote base on a new early warning system designed to give the nation at least fifteen minutes' warning of any polar ballistic missile attack.

Gigantic radars already are beaming an electronic umbrella over the North Polar region, regarded as the most likely route for any missile or air attack against the United States.

Air Force officials and technicians of the Radio Corporation of America, one of the chief builders of this installation on the edge of Greenland's icecap, told visiting reporters that tests so far had given them a "high degree of confidence" that the system would be effective.

The system, which will go into full-scale operation this fall, will be able to detect a missile, determine its probable target, and dispatch the information to United States and British defense centers within seconds. The fifteen-minute advance warning was regarded as a minimum.

As to its accuracy, Brig. Gen. John B. Estick, deputy director of Air Force Communications and Electronics, said the system could detect a "small kitchen door over the West Coast" if its radar antenna were set up on the East Coast.

Besides its use as a guardian against enemy attacks, the system will also be valuable in helping to establish space platforms, one of this country's prime goals in its explorations of outer space.

This $500,000,000 base will be one of three eventually to make up the completed systems. The other installations will be built at Clear, Alaska, seventy-five miles south of Fairbanks, and at Fylindales, England, about 200 miles north of London.

The Alaska post, to be in operation by the summer of 1961, will cost $328,000,000. The British installation will cost $115,000,000, with the United States paying about $90,000,000 under the terms of a point agreement.

Budgetary consideration forced the builders to postpone plans to equip the Thule and Alaska bases with equipment that could not only detect but also track missiles. The extra devices would cost from $75,000,000 to $100,000,000 for both bases.

The Polar Times

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AUGUST HOWARD, Editor

THE POLAR TIMES highly recommends "The Polar Record," published by the Scott Polar Research Institute, Cambridge, England.

The American Polar Society was founded Nov. 29, 1934, to band together all persons interested in polar exploration. Membership dues are one dollar a year, which entitles members to receive THE POLAR TIMES twice a year.

Back issues are 50 cents each.

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3D ATOMIC VESSEL REACHES THE POLE

Submarine Sargo Breaks Through Ice in Arctic and Plants Hawaiian Flag

WASHINGTON, Feb. 10 (AP)—The Navy announced today the fourth trip by United States atomic submarines to the North Pole.

The submarine Sargo, third nuclear vessel to accomplish the feat, broke through the ice at the top of the world yesterday afternoon and planted the state flag of Hawaii. The vessel sailed from Hawaii on Jan. 18.

The cruise to the pole, in the midst of Arctic winter, re-emphasized the ability of American nuclear submersibles—including Polaris-missile submarines—to take positions at any season in the international waters above the Soviet Union.

The Navy announcement on the latest trip referred only to the scientific aspects of the voyage.

It said the Sargo, like the submarines Nautilus and Skate before her, was collecting oceanographic data, including information on the "physical structure of the ocean bottom and about sea and ice conditions in the relatively unknown area."

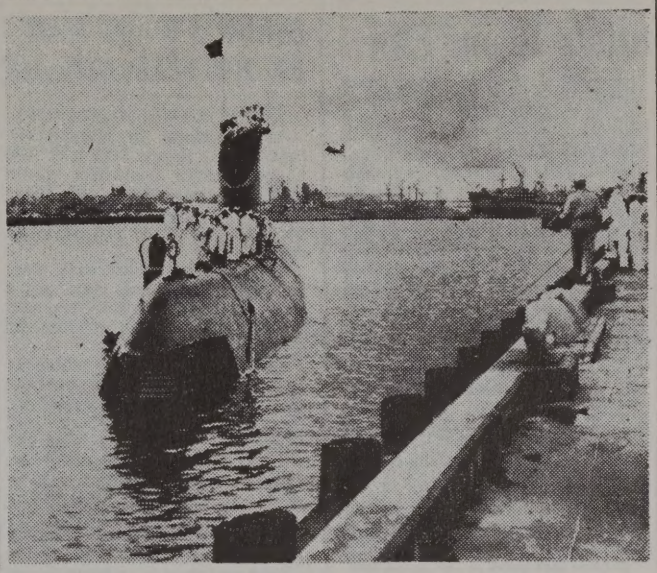
The direct-line distance from Pearl Harbor, the Sargo's home port, to the North Pole is about 4,200 nautical miles. However, the Sargo, in her explorations, traveled a longer course.

She was under the ice for 2,744 miles before arriving at the pole fourteen days and twenty-one hours after submerging at the edge of the pack in the Bering Sea southwest of Alaska.

On the way to the pole the Sargo pushed up through the ice seven times. The last two break-throughs, apparently including the one at the pole, penetrated ice about three feet thick, which the submarine reported was the minimum thickness encountered. On the last two occasions, only the conning tower of the Sargo was shoved through the ice.

Lieut. Comdr. John H. Nicholson of Oakland, Calif., skipper of the Sargo, planted the Hawaiian flag at the pole and radioed the news to Gov. William F. Quinn of Hawaii.

The Nautilus, first nuclear submarine in the world, reached the North Pole Aug. 3, 1958. On Aug. 11, the submarine Skate arrived at the pole, then repeated her cruise in March of the following year.



HOME FROM ARCTIC: The nuclear submarine Sargo docked at Pearl Harbor March 3 after a history-making Arctic cruise of 6,000 miles under polar ice cap and surfacing at North Pole. Helicopters dropped showers of flowers on the returning seamen. The Sargo's superstructure and bow were damaged by her 16 through-ice surfacings. A giant Hawaiian lei hangs from the dented superstructure, as some of the 104 officers and men and seven natural scientists stand by for docking.

HOW SARGO FARED 31 DAYS UNDER ICE

Skipper Describes Voyage of Atom Submarine to Arctic —Mission Successful

HONOLULU, March 4 (UPI) —The boyish-looking naval officer stood before a wall map with pointer in hand yesterday and remarked in the tones of a young college professor:

"When our bow planes froze, this caused quite a problem."

The officer was Lieut. Comdr. John H. Nicholson, 35 years old, captain of the nuclear submarine Sargo. He was describing a 6,000-mile voyage under the Arctic ice to and around the North Pole.

The Sargo also proved it could find ice thin enough in winter to break through to the surface to fire guided missiles. Her conning tower housing was smashed through the ice sixteen times. At the surface, the temperature was from 30 to 40 degrees below zero.

When the Sargo arrived home yesterday, she received the naval unit citation, the highest peacetime decoration a ship can be given. Rear Admiral William E. Ferrall, Pacific Force Submarine commander, decorated Commander Nicholson with the Legion of Merit, the highest individual peacetime award.

Lt. Cmdr. John H. Nicholson

The following dispatch was written for The Associated Press by Lieut. Comdr. John H. Nicholson, skipper of the Sargo:

PEARL HARBOR, March 4— The two most significant things about our voyage are the length of time spent under ice—thirty-one days—and smashing our way through three feet thick ice.

It means that three feet thick ice no longer is a problem. It means there are so many more surfacing opportunities in the Arctic than we had previously known.

We found that the ocean floor in the Arctic is flat and muddy. That there is fish. We found a shrimp. We found tremendous ice ridges, fast moving currents and extremely uniform area beneath the ice.

The temperatures under the ice are fairly uniform, too. The average thickness of Arctic ice is about ten feet. The coldest weather we experienced—minus 40 degrees—came when we surfaced off the Canadian archipelago just off Ellef Ringnes Island.

We left Pearl Harbor Jan. 18 and encountered first ice near St. Mathew Island on Jan. 25. Our baptism of ice came when the ocean floor suddenly dropped to 160 feet, then began rising rapidly until we only had about five feet clearance between ice and ocean bottom. We just managed to ease over an uncharted peak—or what we then thought was a peak. It was in the Bering Sea just before entering the Bering Strait. The danger spot became known as "Tall Gonzales."

We maintained a speed of eight knots, tried to surface several times but couldn't quite make it. The ice was about five to seven feet thick. We finally found an opening and burst through Jan. 31.

We reached the North Pole Feb. 9 at 9:34 A. M. Honolulu time, circled the North Pole in seven minutes — probably the fastest globe-circling voyage anyone has made.

We threw a Jacobs ladder over the sail (superstructure), and Harold Meier of Honolulu, fondly known as "Pineapple," raised the Hawaiian state flag over the pole.

We opened a post office. The submarine is carrying almost 20,000 pieces of mail. Each letter was canceled by a special stamp showing a submarine breaking through the ice. It bears the lettering "Sargo 583 —North Pole 1960."

NOME GETS RADIO UNIT

Church-Sponsored Station Is First in the Alaskan City

NOME, Alaska (RNS) — Radio Station KICY, "The Voice of the Arctic," sponsored by the Evangelical Covenant Church of America, was dedicated in special ceremonies here.

The five-kilowatt station, with an assigned frequency of 850 kilocycles, is the only radio station within a radius of 500 miles, the nearest stations being at Fairbanks and Anchorage.

Besides religious programs, the Nome station broadcasts news, music, coverage of public events, and commercial advertising. It beams programs to Eskimos in their native language one hour a day.

The station is owned and operated by the Arctic Broadcasting Association, a subsidiary corporation of the Covenant Church.

U. S. Airlifts Scientists From Floe

FAIRBANKS, Alaska, Jan. 7 (AP)—The Air Force began an airlift in the Arctic Ocean today, removing four of twenty-nine scientists from a crumbling floe used as a research camp.

Ladd Air Force Base here said the men remaining on the floe were in no danger. A spokesman said they would be taken off in the next five to seven days.

Removal of the thirteen military and sixteen civilian scientists was ordered after the Arctic pack ice had suddenly begun to shift and break. A cargo plane was sent to take off the first group from the camp, known as "Station Charley."

Overnight the 2-by-4-mile floe, about 400 miles northwest of Point Barrow, Alaska, and about 600 from the North Pole, sheared to one-fourth its original size.

The scientists manning the station have been collecting meteorological and technical information on the Arctic. The camp was established last May. Personnel has been changed at regular intervals.

The camp radioed that the floe had begun to erode and conditions around it were "unstable." The runway scraped out by bulldozers last year was reduced from 5,000 to 3,700 feet, but was still long enough to accommodate the twin-engine C123J sent there today.

The scientific party is headed by Dr. Kenneth Bennington of the University of Washington, which has the contract to carry on research work begun in the Arctic during the International Geophysical Year.

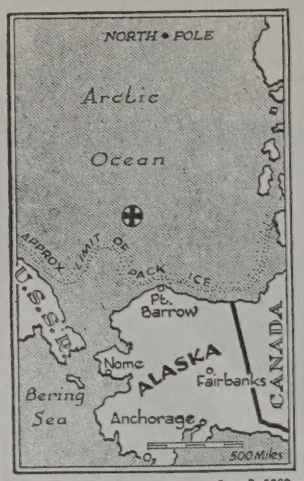
The aerial evacuation is the second from an Arctic floe in less than fifteen months. Twenty scientists were taken off pack ice near the North Pole in November, 1958, in a more urgent rescue.

Three staff members from Columbia University's Lamont Geological Observatory were in the group on Station Charley.

They are Thomas Herron, 26 years old, Marquette, Mich.; Charles Chance, 24, of Bergenfield, N. J., and Roy E. Willie Jr., 23, Bethesda, Md.

FAIRBANKS, Alaska, Jan. 15 (UPI). — Some prefabricated huts and a barren flagpole on a crumbling chunk of ice was all that remained today of Floe Charlie.

An Air Force C-130 transport brought the last four men from the ice station to snug quarters here, completing a withdrawal operation which began eight days ago.



The New York Times Jan. 8, 1960

Site of the floe (cross)

All scientific equipment placed aboard the ice station was removed from the floe 450 miles north of Point Barrow, Alaska. Only two huts, each large enough for two men, the flagpole and the landing lights of the ice station's air strip were left for nature to bury in the shifting ice pack.

The final act performed aboard the crumbling floe was the lowering of the Stars and Stripes. The men who remained until today, along with the C-130 crew headed by Capt. William A. Culling, stood at attention in the sub-zero cold to salute the wind-tattered flag. Then they carefully removed the flag and brought it back here to present to Brig. Gen. Gordon H. Austin, of the 11th Air Division stationed at Ladd Air Force Base.

Twenty-five other civilians and military men who had been stationed aboard the floe were brought out in small groups previously along with loads of equipment. The equpiment aboard the station was valued at $200,000.

The last four men to leave Floe Charlie were Capt. Arthur H. Schroeder, of Pasadena, Tex., commander of the station; Capt. James F. Smith, of Meares, Okla., a rescue expert; S/Sgt. Theodore Narasaki, of Richmond, Calif., and A/1C Garry Stanfill, of Lowell, Ore.

The orderly withdrawal of men and equipment from the scientific station, established in May to study Arctic Ocean currents and weather, began Jan. 7 when the floe began to disintegrate because of pressure ridge forming in the Arctic ice pack. When the last flight departed today, the floe was only a fifth of its original size.

ESKIMOS WANT MAIL BY DOG SLED, NOT AIR

ANCHORAGE, Alaska (UPI) —The Eskimos of Kaltag village would appreciate it if the United States Postoffice would abandon the system of delivering their mail by air and go back to the "good old days" of dog sleds.

It would be faster that way, the village council said in a letter to postal authorities, and it would also give the villagers something to do.

At present Kaltag, which is 400 miles northwest of Anchorage, has its mail delivered by an Alaska Airlines plane that serves the village from Unalakleet, seventy-one miles away, on a once-weekly schedule. However, the flight is often canceled because of bad weather.

The Eskimos said it would be much better if letters were delivered to Nulato, which is on an air route from Fairbanks, and then brought the remaining thirty-two miles by sled.

That would make for quicker, more regular service, the council said, adding:

"If we are allowed to deliver our own mail, it will help us a lot. There was no job for anybody last summer and trapping is no good. We don't know what we can do for our families."

ALASKA CLAIMS ISLES

State Seeks Ownership of Walrus Islands

JUNEAU, Alaska (UPI)— Gov. William A. Egan of Alaska said recently the state has begun action to obtain the Walrus Islands in Bristol Bay as a major step in a firm conservation program for the forty-ninth state.

A claim for the group of islands, just off the coast of Alaska, has been filed under the state's land selection program by the Department of Natural Resources. The request for the claim was made by the Alaska Board of Fish and Game.

The islands are frequented each summer by a herd of 1,000 to 3,000 walruses and represent the last remaining area under the United States flag where walruses are on land.

Scientists Leave for Arctic

BEDFORD, Mass., April 23 (AP)—An Air Force plane took off today to deliver eighteen scientific observers to the Ellesmere Ice Shelf, a block of ice above the Arctic Circle. The party will remain until September to investigate the possibility of using the shelf for an advanced Air Force Base, and to do research on the Arctic.

RADAR DOUBTFUL IN DETECTING ICE

Bergs Prove Poor Reflector According to '59 Test, Mariners Warned

Tests last year by the International Ice Patrol show that radar is a doubtful aid to ships in detecting icebergs.

A warning to this effect has been sent to mariners by the United States Hydrographic Office. The notice stresses that, as a radar reflector, an iceberg is only one-sixtieth as efficient as a ship of comparable size and that actually sea water is a better reflector than ice.

This means, according to the study, that unless a berg or "growler"—the term for small ice—is observed by radar outside the area of clutter that ordinary waves and the wake reflect on a radar screen, the danger may not be observed at all.

On the average a berg of dangerous size will be detected on a radar screen no farther than four miles away the Hydrographic Office said.

The conclusion is that "traditional caution" is still the best course to safety.

The patrol employs aircraft based at Argentia, Nfld., for aerial observation, a vessel for surface patrol when necessary and an oceanographic ship for mapping ocean currents.

The collection of data on ice, weather and sea temperatures is also an important feature of the service. Ships are requested to help by sending in information to Radio Argentia, which in turn broadcasts its findings twice a day, at 12:48 P. M. and at 12:48 A. M.

WORM SPREADS DISEASE

Parasite Killed at Least Four Eskimos in 1959

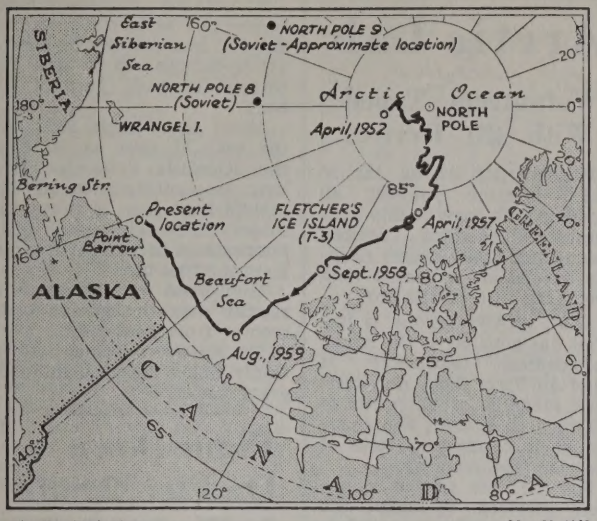
ANCHORAGE, Alaska (UPI) —A disease caused by parasitic worms has killed at least four Eskimos in Alaska in 1959.

Dr. Robert Rausch, a research scientist at the Arctic Research Center in Anchorage, said the disease so far has been found only in the native population Aveolar hydatid, the responsible parasite, has caused a death almost everytime it was found.

Location Affects Weight

A man who weighs 200 pounds at the North or South Pole is one pound less at the Equator, according to the National Geographic Magazine. This happens because the earth bulges at the Equator, and centrifugal force is greatest there. Gravity, thus weight, is slightly decreased.

Air Force Ice Station Is Drifting Toward Arctic Coast of Siberia



The New York Times May 22, 1960

Black line shows drift of the U. S. ice island toward Siberia. Black dots refer to Soviet ice stations in polar area.

By WALTER SULLIVAN

The New York Times.

A United States Air Force station—whose mission is strictly peaceful—seems to be headed straight toward Siberia.

It is T-3, also known as Fletcher's Ice Island. After a grand tour of the Arctic Ocean that during the last decade has carried it close to the North Pole, it is drifting past Alaska toward Soviet waters.

Its passengers, ten scientists and fifteen supporting Air Force men, have no control over its movements. Their destiny is at the whim of wind and current. In fact, had they had any say in the matter, they would be much farther out to sea.

Several weeks ago the island apparently grazed bottom and one end of it was broken off. According to Kenneth L. Hunkins of the Lamont Geological Observatory of Columbia University, who recently returned from the island, the lost fragment was about two miles wide and two and a half miles long. The remainder is roughly thirty-nine square miles in area.

The island was traveling through shoal water about thirty miles north of Point Barrow, the northernmost tip of Alaska. Although there is now a little more water under its 150-foot "keel," the island is by no means clear of the shoals.

If it continues westward to the region north of Siberia, a decision will have to be made regarding its status. Presumably it would not be politic to continue it as an Air Force station. It has been suggested that the program there could be placed under international civilian auspices—for example under the Arctic Institute of North America, which is a joint Canadian-American group.

The Russians might be invited to furnish a member of the scientific staff, as has been done at the chief United States base in Antarctica. If the base is evacuated, its twenty buildings would probably seem inviting to the Russians and, in a period of friendlier relations, the station might be lent to them until it circled the ocean and returned to the American side.

A complete circuit usually takes about ten years.

The Russians now have two drifting stations on the polar ice: North Pole 8 and North Pole 9. Both are presumably on floes about ten feet thick. An ice island somewhat similar to T-3, known as North Pole 6, was manned by the Russians from 1956 until last September.

It was evacuated when it broke out of its circumpolar orbit and headed south, between Greenland and Spitsbergen, toward the Atlantic and a slow death by melting.

For much of the time, since 1952, T-3 has served as a roving laboratory from which to explore the climate, water, ice, sea-bottom and other features of the Arctic Ocean. It was discovered after the Air Force, in 1947, began sending B-29 bombers on weather flights over the Arctic Ocean.

Radar operators on the planes observed platters of ice so massive that they stood out clearly from the rest of the ice as seen on their scopes. They were useful and were given target designations T-1, T-2 and T-3. The first of these was an immense piece, about 300 square miles in area.

The commander of the B-29 squadron, Col. Joseph O. Fletcher, was chosen to head the station established on T-3 in March, 1952, and hence it came to be known as Fletcher's Ice Island. In May, 1954, when it drifted close to weather stations in the Canadian Arctic, it was evacuated. It was reoccupied for several months the next year and then, in the spring of 1957, it was enlarged and manned for the International Geophysical Year.

It has been in operation ever since, drifting slowly west along the edge of the North American continental shelf, usually about 100 miles offshore. It is at present the only American station on the Arctic Ocean. Station Charlie, on a floe, had to be abandoned in January when the ice split.

Since the stations are supplied entirely by air, they must be large enough to accommodate an air strip. The ice-paved strip on T-3 is almost a mile long and was not imperiled by the recent break-off.

There are probably about two dozen ice islands in the Arctic Ocean. Several, including T-3, are thought to have broken off from the shelf of ice attached to the north coast of Ellesmere Island.

Some of the most recent work at T-3, acording to Mr. Hunkins, has made use of small ski planes to set off explosions on floes some distance from the ice island. Shock waves produced by these shots were recorded at the island to obtain information on the earth's crust beneath the ocean. The area is of special interest in that it is a transition zone from a continental to an oceanic structure.

Mr. Hunkins believes this is the first time aircraft have been used, on the polar pack, to place explosives far enough afield to obtain deep cross-sections of the earth's crust.

If T-3 continues westward to the Soviet side of the Arctic, it is unlikely that it will drift close to the Siberian coast. More probably it will curve to the right and follow the general clockwise drift, either continuing into the Atlantic or recurving back past North America.

Black Gold Alaskan Lure

WASHINGTON — Oil today lures more prospectors to Alaska than gold, the National Geographic Magazine says. Neither subzero cold nor the seemingly endless night of Alaskan winters halts exploration and drilling. Construction crews thaw the rock-hard soil with steam hoses. Some isolated camps receive supplies by helicopter.

Alaskan Census Requires Kayaks And Dog Sleds

By PAUL M. QUINN

ANCHORAGE, Alaska (UPI)—Mrs. Betty Nelson, an attractive, personable mother of four children, packed her bags this week for what she describes as "one heck of a trip."

Mrs. Nelson, as one of the three supervisors for Alaska during the 1960 census, starts a head count April 1 in a territory that stretches in length equal to the distance from the tip of Lake Michigan to Los Angeles. Her "trip" will take her, in a 25-day period, from the tip of Attu Island in the Aleutian chain to the Canadian border. Her territory covers roughly 200,000 square miles.

During the period of the census, Mrs. Nelson and her crew of 113 enumerators will visit remote trappers' cabins, die-hard gold miners, nomadic Eskimos and small groups of homesteaders, including the remaining Michigan "59'ers" who left their homes in that state and moved to Alaska to carve out a rough but new life.

All arrangements for the census in the largest state have been made. Bush pilots are ready to fly to more remote homesteads. Dogsleds, kayaks, ferry boats and snowshoes are ready for the trips the head-counters will make.

The boats and kayaks will be used, according to Mrs. Nelson, when she and her staff start counting the 49th state's native population in the Aleutians. The dog sleds will be pressed into action in the interior of Alaska, and the bush pilots will spread out to areas too remote to be reached by other means of transportation.

An attempt to take the census in 1950 was not too successful because of the extremely rugged terrain, inclement weather and lack of sufficient transportation.

But preparations for this year's census have been going on at full speed for more than three months.

"It's necessary for us to have a good census up here now that Alaska is a state," Mrs. Nelson said. "It's a big job and it's going to take a great deal of ingenuity and hard work. But, it's going to be done and done right."

In all, Alaska consists of roughly 586,000 square miles with a population of some 250,000 people.

Eskimo Sun Visor

An Eskimo sun visor is made by cutting slots in a carefully-shaped piece of wood and fitting it with strips of hide.

A.E.C. IS PURSUING HARBOR PROJECT

Returns Experts to Alaska for New Talks and Study for Project Chariot

The New York Times.

SAN FRANCISCO, March 12 —Emissaries of the Atomic Energy Commission were back in Alaska this week to spread the word about Project Chariot.

This is the long-discussed program for testing the feasibility of using nuclear explosives in such peacetime pursuits as building coastal harbors.

Project Chariot envisions the digging of a harbor on the Northwest Alaska coast near Cape Thompson. This site is about 100 miles above the Eskimo village of Kotzebue and near there the Bering Strait meets the Arctic Ocean. It lies 175 miles across the Chukchi Sea from the Soviet Union.

The San Francisco operations office of the A. E. C. announced that its committee on environmental studies for the project had set March or April as the preferred time of year for the detonation of blasts creating the new harbor.

It was evident, however, that even if international agreement of nuclear testing were reached, the Alaska project would have to wait until 1961 or 1962. There is still much study to be done to determine the safety of the experiment.

There is also the job of convincing the leaders of Eskimo settlements that the underground nuclear explosions would not harm the scattered populace or the Eskimo hunting grounds.

The study program was begun last year. It is aimed at compiling detailed data on plant, animal, fish and bird life of the land, sea and fresh water in the area "and their relationship to man's livelihood." Camp facilities with two field laboratories at Ogotoruk Creek, near Cape Thompson, have been maintained through the winter.

The committee on environmental studies is headed by Dr. John N. Wolfe, chief of the commission's environmental studies branch, Division of Biology and Medicine, in Washington.

The committee has determined that the detonations could be conducted under certain limitations. One of these limitations is the time of year, with spring preferred.

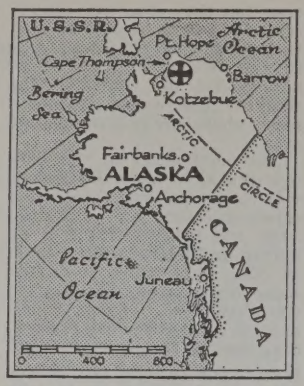
Also the preferred disposition of the debris from the blasts, especially that of a radioactive nature, is to the sea. Much of it, the committee reasoned, would thereby be deposited on the ice and "would decay appreciably before entering biotic cycles through the sea after break-up."

And the committee emphasizes that "in no case should radiation be delivered to humans in excess of that specified as acceptable for the general public; nor should the detonation cause significant damage to the food sources of the indigenous human population."

Spring was designated as the best time for the explosions because most plants and small animals would be under snow cover, few birds would remain in the area, hunting activity on the land would be at a minimum and radioactive debris would be flushed off the frozen landscape by the spring run-off of rapidly melting snow. Moreover, weather was labeled as generally good then and increasing daylight would help the surveyors.

The present plan of the University of California's Lawrence Radiation Laboratory at Livermore, an A. E. C. contractor, is to detonate one 200-kiloton and four twenty-kiloton explosives simultaneously. A twenty-kiloton explosive would have power equal to that of the Hiroshima bomb.

The 200-kiloton explosion would be at a depth of 800 feet. The lesser ones would be at 400 feet.



The New York Times March 13, 1960

Site of harbor (cross)

Save 3 Hunters Adrift on Ice Floe

United Press International.

KOTZEBUE, Alaska, May 14.—Three of five seal hunters who floated out to sea on an ice floe were rescued yesterday after an Air Force crew dropped a life raft to them.

A pilot spotted the five, believed to be Eskimos, floating on the cake of ice in Kotzebue Sound. A Civi l Air Patrol spokesman said the men apparently were camped on a large floe while hunting seal. The floe crumbled and they were set adrift.

Test Human Heat Loss in Arctic Lab

Volunteers Taped With 20 Devices

FAIRBANKS, Alaska, Jan. 30 (AP).—Imagine yourself all taped up with some twenty temperature recording devices, placed in a not-so-warm sleeping bag in an unheated tent, your head in a plastic box.

That, with variations, is just what has gone on at the Arctic Aeromedical Laboratory at Ladd Air Force Base. An expert team made up of University of Washington and Air Force personnel is conducting tests of heat loss and recovery.

For the two airmen volunteers involved, it means $55 extra monthly plus the satisfaction of having contributed both personal interest and co-operation to a scientific experiment.

For the seven technicians, it means an original thrust into a new field of basic research.

For basic research, it means just that much more knowledge which is available when necessary and appropriate to some probe of science.

This particular Aeromed lab project is under the supervision of Dr. Loren Carlson, University of Washington professor who is noted as an expert in cold weather and altitude physiology.

Project chief is Capt. Earl Heberling, Air Force psychologist. He's working with Washington graduate students Tom Adams—who served with Aeromed as an officer—and Keith Miller. Dr. Kjell Johaneson, of Oslo, Norway, is research assistant. Sgt. Lee Worthen of Aeromed is a technical aide.

Although the scientific personnel have been subjected to the tests, the two study guinea pigs are Airmen 2/C John F. McGehee and John Brackett.

The experiment goes something like this:

For three-quarters of an hour, the subject is submerged in a tub of constant temperature water. He breathes through a tube and from this device, and several other recorders, his adjustments to the temperature of the tub—or environmental acclimatization—are transcribed.

The subject is then hurriedly dried and taped with heat-and-cold sensitive thermocouples—about twenty in all—and hustled outside. He's placed in a sleeping bag and his head slipped into an air-tight plastic box. A rubber gasket fits tightly around the neck. Air is pumped into the box, and an alert buzzer or "panic button" is put into the subject's hand.

He's then abandoned, but certainly not forgotten.

Those thermocouples are attached to a battery of recording graphs: temperatures on a minute-to-minute basis are recorded for each part of his body.

About eight hours later, it's the bath all over again. Now the scientists determine how long, in consideration of the night's heat loss, it takes the subject to re-achieve the body temperature he had when taken from the first bath.

The basic questions: how rapidly does the human body recover from heat loss?

The answer is somewhere in thinly linked lines on miles of graph paper.

Plane Down On Floe, 2 Safe In Week's Ordeal

FAIRBANKS, Alaska, Mar. 5 (AP).—Two men who lived on moose meat sausage and dry biscuits, slept in ice igloos and drank snow water for a week were safe in Kotzebue today.

George Baumann, fifty-eight, polar bear hunter from Nevada, Mo., and Lee Holen, forty-three, Anchorage pilot, were rescued yesterday, a week after their light plane was forced to land on a floe in Chukchi Sea.

Mr. Holen described their ordeal in a telephone interview from Kotzebue, about 200 miles north of Nome.

He said they spent their first night sleeping on the wings of the plane, which partly sank through the top layers of the floe. After two days, he said, they left because of the ice's instability. Using a raft fashioned from the plane's gas tank and often leaping from one rotting ice cake to another, the two made it some thirty miles to shore.

Only their sleeping bags and the snow igloos that protected them at night kept them from freezing in the near zero temperatures, Mr. Holen said. He said they hiked down the coast toward Kivalina for four days. Thursday night they met a party of Eskimos who took them into Kivalina.

Bering Sea Is Shallow

The Bering Sea between Alaska and Siberia is made to order for trawler fishing. Forty-two per cent of the Bering Sea's 878,000 square miles are less than 100 fathoms deep.

Muir Glacier an Immense Area

The Muir Glacier in Alaska covers an area of about 1,215 square miles.

Mt. McKinley Saga: All Climbers Safe

ANCHORAGE, Alaska, May 24 (AP)—Alaska's mountain rescue ended today with the safe arrival here of two men who had been stranded on Mount McKinley, North America's highest peak.

The Whittaker twins of Redmond, Wash.—James and Louis—were taken to the Elmendorf Air Force Base Hospital for treatment of minor frostbite.

The Whittakers came down from the mountain under their own power. They were flown by helicopter to a rendezvous with an Air Force plane, which brought them here.

Still on the mountain were fifteen to twenty climbers who took part in the rescue of the Whittakers, two companons and an ill woman who had been a member of another climbing party.

The others were rescued during the week-end. All five were disabled last Tuesday night.

By the Associated Press

Anchorage, Alaska

A dark spring sky and a layer of dense clouds thousands of feet thick May 23 delayed the successful completion of this state's greatest mountain rescue effort.

A storm which sent winds up to 100 knots swirling around the continent's highest mountain, towering Mt. McKinley, kept the rescue machinery at a complete standstill. Heavy clouds completely obscured the mountain from 2,000 feet up.

Still to be removed from McKinley were the Whittaker twins of Seattle, Jim and Lou. They were believed in no danger. Only the weather prevented aircraft from picking them up from their camp site at the 10,200 foot level.

With the Whittakers were a score or more of seasoned mountain climbers, hurried onto McKinley's icy slopes after the Whittakers and two companions, John Day and Pete Schoening, fell 400 feet down an icy slope at the 18,000-foot level late May 17.

Mr. Day, a rancher from Central Point, Ore., was evacuated from the 17,200-foot level late May 20 by a daring helicopter pilot, Link Luckett, who took his craft 1,200 feet above what had been considered its top operating limit.

The easy smiling Mr. Luckett pushed his small "chopper" beyond its supposed range again May 21 to remove Mr. Schoening of Seattle.

The rescue trips by Mr. Luckett, a native of Springdale, Ark., were described by local rescue and Air Force personnel as the highest areial rescues ever made. They also described the rescue as Alaska's greatest.

Another amazing aerial rescue, one of numerous acts of individual and group heroism involved in this rescue operation, was made May 20 by Don Sheldon of Talkeetna, Alaska, a bush pilot.

The New York Times May 20, 1960
Mount McKinley (cross)

Flying a light plane, Mr. Sheldon, a veteran of other air rescues, landed at the 14,000-foot level on McKinley and whisked to safety Mrs. Helga Bading of Anchorage.

Mrs. Bading, a member of an Anchorage climbing party which went to the assistance of the four stranded mountaineers, became ill.

While the massive rescue effort had its bright, happy side, there was also a dark side.

William Stevenson of Anchorage was piloting a small plane attempting to air-drop supplies to the day party May 20. A military man was a passenger. While circling at 18,000 feet, the plane suddenly dived into the ice and snow. Both men were killed.

Long-Distance Aid

BOSTON, May 21 (UPI) — The foremost expert on Mount McKinley said today that he had made known a "hidden" landing area on the peak to speed the current rescue operations.

Dr. Bradford Washburn, director of the Boston Museum of Science and chief of a Mount McKinley research and mapping project for the last fifteen years, played his key rescue role from Boston in a series of 4,500-mile telephone calls.

Dr. Washburn, who had climbed to the top of the mountain three times, directed veteran light plane and helicopter pilots to the landing area, helped them draw flight plans and interpreted weather conditions on the peak.

He called Anchorage two days ago and told of the "hidden" landing area at the 14,500-foot level of the mountain.

Photographer stands next to plane used to drop supplies to climbers stranded on Mount McKinley (background).

Moose Derails Train; 60 Passengers Unhurt

WASILLA, Alaska, March 11 (UPI) — Approximately sixty persons escaped injury this morning when five cars of an Alaska Railroad passenger train were derailed when an engine struck a moose sixteen miles north of here.

Two engines, two baggage cars and a coach were thrown off the tracks. The engines and baggage cars turned over but the coach remained upright.

Railroad officials said the moose ran in front of the first engine and forced it into a switch. The other cars piled up at the switch and derailed.

The passengers, going to Anchorage, were picked up by a special train and taken to their destination.

The moose was killed.

ESKIMO COWBOYS WILD ABOUT RODEO

Sport Gains in Popularity in Small Alaskan Village —U. S. Airmen Started It

ANCHORAGE, Alaska (UPI) —Texans watch out! Alaska is not only the largest state in the Union, but part of its Eskimo population is turning cowpoke and branching out into the bronc-busting game.

In the remote village of Nikolski, 1,000 miles southwest of here in the Aleutian Islands, the Eskimos are "tickled pink" with their new-found sport—rodeo.

The Eskimos recently watched and then participated in one of the wildest wild west shows since Buffalo Bill Cody barnstormed across the country to Madison Square Garden.

There are only sixty people in the village, the majority of them Eskimos, but there are Air Force men stationed at a Dew Line radar site near by.

Between the United States Air Force men and the Eskimos anything went when the hastily constructed chutes flew open and the horses and bulls charged out trying to shake loose their riders.

The first rodeo met with such enthusiastic response it probably will become a regular event. One thing is certain, it is the only rodeo in all of Alaska.

The first contest was sponsored by the Harris Aleutian village as entertainment for the airmen and Eskimos. But before it was over everyone was in the act.

After Nick Pans, foreman of the Harris Ranch, demonstrated that it was possible to stay on the back of a bucking and twisting bull, the Eskimos and airmen gave it a try.

Nikoloski Island, which has sub-Arctice climate and an annual temperature range in the upper thirties, is an interesting place even without the Eskimos practicing their new-found game.

The vegetation consist of grass which grows a foot high, but there are no trees or shrubs. In the summer months the hills are a mass of miniature flowers. There is very little snow in the winter but Nikoloski gets more than its share of fog and rain.

Alaska Was a Bargain

Salmon fishing, Alaska's leading industry, earns some $60,000,000 yearly, more than eight times the price paid for the from oxidized linseed oil, rosin and cork flour, says National Geographic Magazine.

ESKIMO LANGUAGE NOT RADIO STATIC

Broadcasts to Natives Are Designed to Prepare Them for a New Way of Life

WASHINGTON—The air waves of the Far North are crackling with an awesomely difficult language—Eskimo.

An Eskimo noun can take more than 1,000 forms, each with its own subtle meaning. The famed Arctic explorer Vilhjalmur Stefansson, an authority on Eskimo, says that a verb root probably can be used in ten if not hundred of thousands of ways.

For some years Greenland's broadcasting system has transmitted a variety of programs in the melodiously guttural language, the National Geographic Society says. The Soviet Union beams programs in Eskimo, and a Canadian station to be incorporated as the Eskimo Broadcasting Corporation has applied for a license in Toronto.

Teaching the Eskimo more about the world beyond snow, ice, and tundra is a prime concern of Canada's Department of Northern Affairs and National Resources. With game dwindling and industry penetrating the frozen northlands, the Eskimo is changing from a self-sufficient hunter to a working man who must buy what he needs in a general store.

Fortunately, Eskimos speak virtually the same dialect, though they are thinly scattered from Greenland to the Aleutians. The origin of Eskimo is not known. Some linguists believe it to be related to the Ural-Altaic family; others think the language may be a remote offshoot of the Indo-European group.

Like most primitive languages, Eskimo is complex and methodical. Eskimos use 10,000 to 15,000 words in everyday speech.

An elaborate system of suffixes modifies word meanings. There are no articles. The verb is all important, and most parts of speech can be turned into verbs. Like a magnet, the verb pulls nouns and suffixes together so that an entire sentence can be compressed into one word.

The Eskimo expresses his thoughts quite differently from an English-speaking person. The predicate stands at the head of the sentence like a mighty floodlight, illuminating what follows. The question "Who owns this dog?" comes out in Eskimo, "Dog this one, who possesses?"

Positive statements are seldom made, possibly for fear of offending the spirits. "I know" is imparted by "I do not ignore." Rather than make an absolute command, an Eskimo will say, "Let us do so and so."

The Eskimo's vocabulary is rich in terms for game, weapons, tools, his own senses, and home. By the addition of suffixes, *iglu*, or home, assumes many meanings. There are fine shades of difference for various kinds of wind. In English a seal is a seal all year round, but in Eskimo precise words for seal denote its seasonal habits and growth.

Despite its variety, the Eskimo language contains few abstractions. Words such as humanity and sin cannot be precisely translated. Forgiveness becomes "not-being-able-to-think-about-it-anymore."

Curiously, gender does not enter into Eskimo grammar or personal names. It is not unusual for a boy to be given a late grandmother's name. In consequence, he is often called "mother" by his mother, "mother-in-law" by his father, and "grandmother" by his sister.

Few foreigners have ever learned to speak Eskimo fluently. Igloo, kayak, and parka are among the few Eskimo words that have come into English. Even the word Eskimo is non-Eskimo. It is an Indian word meaning "eater of raw flesh," an ironic misnomer because cooked meat is greatly preferred by the Innuit, or people, as the northlanders call themselves.

Resurgent Otters Resettle Isles

U.S. Helps to Rescue Sea Variety From Near Extinction

By WALTER SULLIVAN

The sea otter, whose soft fur and beguiling friendliness were almost its undoing, has regained its grip on existence.

From the brink of extinction its population has risen to more than 30,000. Also, in what appears to be the first successful transplant, young otters have been flown back to the Pribilof Islands, where they were annihilated during the last century.

It was typical of these animals that, during the few weeks of their captivity, they had become so tame that, when released, they would not leave until each had been given a fish. Since the sea otter eats only when afloat, they would all then head for the water.

A full-grown sea otter weighs about eighty-five pounds. The last time one is known to have been seen in the Pribilofs was in 1892, and it had already died. According to Karl W. Kenyon of the United States Fish and Wildlife Service, as many as 5,000 otters were killed in those islands during the first year after their discovery by Russian fur hunters in 1786.

By 1911, when the otters and fur seals received protection under an international treaty, hunters from many nations had driven them to near extinction. The seals recovered rapidly, but the otters, who shun long voyages, have come back slowly. Now, however, they are reappearing at points from California to the Aleutians.

Last May Mr. Kenyon, who for a number of years has been helping nurse the otter back to abundance, made an aerial survey of the Aleutians from Attu to the Islands of Four Mountains. He was accompanied by David L. Spencer, refuge supervisor. The 750-mile stretch of islands is windswept and often fogbound—"quite miserable by human standards," says Mr. Kenyon, "but apparently most appealing to sea otters."

They counted 9,507. On Adak, where there had been none in the late nineteen Forties, they saw 1,718. On this basis he estimates that there are now 30,000 in all of Alaska and perhaps 1,000 along the California Coast. A count in 1957 sighted 644 between Point Conception and Carmel Bay. A few have been reported between California and Alaska.

The transplant to the Pribilofs was carried out by Mr. Kenyon and his associates last May 20, using a twin-engine Douglas transport of the Fish and Wildlife Service. Four females and three males just under adult size were lifted from Amchitka Island, in the Aleutians, to St. Paul Island in the Pribilofs.

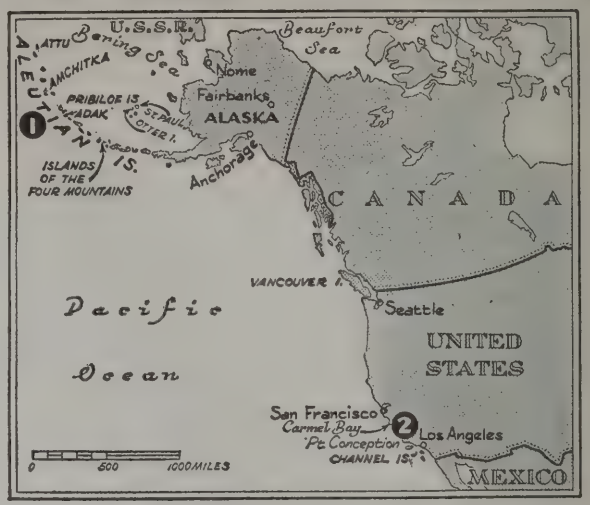
In a recent exchange of letters with The New York Times he reports that they have been seen several times since their release. The transplant was an achievement, for the animals are difficult to keep in captivity.

In 1955 Mr. Kenyon and his co-workers tried to move sixteen of them to Otter Island—another in the Pribilof group. But all apparently died due to their weakened condition.

The sea otter weighs as much as five pounds at birth. The animals, which are big cousins of the land otter and weasel, spend almost all their time in the sea. But they like to stay in water less than fifty feet deep, since they live on shellfish, sea urchins and the like.

They sleep floating on their backs, chin on chest and a paw over each eye. Before dozing off they draw kelp over themselves, not as bedding, but apparently to keep themselves from drifting too far afield. The chest and belly of the floating mother serves as a playpen for her baby. Here the offspring nurses and is preened by the mother's forefeet.

During the nineteenth century skins sold for $200 and $300 apiece.



The New York Times Jan. 18, 1960

An aerial survey of the Aleutians from Attu to Islands of the Four Mountains (1) has shown that sea otters have begun to repopulate many islands. The animals also have been found in the Carmel Bay-Point Conception area (2).

Yukon Still Yielding Gold

More than 90 per cent of the 71,955 ounces of placer gold recovered in Canada in 1958 came from the creeks of the Yukon.

OIL COMPANY TRAINS ESKIMOS IN DRILLING

CALGARY, Alberta (Canadian Press)—An oil company's plan to train Eskimos to work drilling rigs in the Far North is getting good results.

Charlie Thrasher and Frank Joe Esagok recently completed six months of training on rigs of the Peter Drilling Company, Ltd. They will join a Bawden rig in the Mackenzie River delta, 1,200 miles north of Edmonton.

A third Eskimo, who came south with Thrasher and Esagok last spring, returned home last month. He preferred life in the North to work in Alberta.

Bill Blackie, personnel manager of the company, says his company is looking far ahead to the time when oil drilling will be carried out on a large scale in the Arctic. Finding experienced drillers who will stay in the North could be a major problem—one that the company hopes to beat by training Eskimos.

Three more Eskimos will be brought south for training next spring.

"The men we are teaching now will pass their knowledge on to future Eskimo employes," Mr. Blackie said. The plan is a long-term one. The company may eventually staff northern crews chiefly with Eskimos, but this is ten to fifteen years away.

CANADA IS TRAINING ESKIMOS IN GEOLOGY

CHURCHILL, Man. (Canadian Press)—Geiger counters may become standard equipment for Eskimos traveling in this area within the next few years.

The Department of Northern Affairs has hired Harry Leavitt, assistant mines manager for the North Rankin Nickel Mines here, to teach a class of thirty Eskimos the facts of geology.

Mr. Leavitt uses as a text the Life magazine series "The World We Live In," translated into Eskimo dialect by a friend, Pete Murdoch, and the Rev. R. Paradis, a Roman Catholic missionary.

Although it is not yet time for field trips, Mr. Leavitt says, he intends to travel with his students to places where they have seen rock samples. He will also show them how to stake claims.

Rock and mineral sample sets, prospector's picks and magnetic compasses have been sent for the use of his pupils. Each sample tray contains fifty rock samples and fifty mineral samples.

When an Eskimo graduates as a prospector he will be able to search for gold that has been discovered in small quantities on the barren muskeg surrounding Churchill.

Greenland Icebergs Prompt Constant Patrol

By Reuters

Copenhagen

A permanent ice patrol has been set up by Denmark to protect ships in the sea lanes south of Greenland, one of the most hazardous stretches of water in the world.

Safety regulations for vessels sailing between Denmark and its Arctic island also are to be tightened up.

Two Danish ships have sunk in 16 months on the way from Greenland to Copenhagen, taking down with them their passengers and crew. The ships were lost as they turned out from the West Coast of Greenland into the stormy North Atlantic, past the southern tip of the island named Cape Farewell.

The first to disappear was the Hans Hedtoft, specially built for the Greenland run at a cost of $2,000,000, with double-thick iron plates. It hit an iceberg south of Cape Farewell on its maiden voyage in January, 1959, and sank without trace.

Now, this spring, another ship, the Hannes, was lost at almost exactly the same spot. Ironically, the second ship disappeared at almost the same time as the Danish Government was approving measures to set up an ice and weather patrol on a permanent basis.

This air patrol of the shipping lanes south of Greenland finally has been established in an atmosphere of bitter recrimination from some quarters in Denmark at what is considered slackness by the government. There has been considerable criticism of regulations concerning sailing to Greenland.

Some experts here say that winter sailing in this area should be banned. Others say that many ships are not strong enough, and inadequately manned to defy the hazards of these waters.

The Hedtoft tragedy shocked the nation, and led the government to establish the ice patrol, at a cost of 16,000,000 kroner (about $2,400,000).

Now, Catalina flying boats will each day, weather permitting, scour the waters around the southern tip of the island, flying a 500-mile, crescent-shaped route from Frederikshaab, around Cape Farewell, to Tingmarmiut.

Their chief task will be to spot big icebergs and pinpoint them on the map.

The job of the Danish pilots, who started the patrol on a provisional basis last November, is to know the position of every one of the large icebergs and the direction of its drift. Each iceberg is registered on the map and followed day by day.

An ice map is kept by the weather service. With this, ships' captains can be kept up to date on the latest positions of the ice masses. Even if bad weather stops flying for a day or two, the approximate position of the icebergs can be calculated with the help of wind and current charts.

The pilots of the ice patrol will also act as guides when a ship is caught in a thick ice belt, pointing the way to clearer waters.

The central base of the air patrol is the airfield at Narssarssuaq, where at one time 5,000 American servicemen were stationed. The United States decided a few years ago to vacate the base, and the well-equipped airfield was offered to the Danish Government for little more than "a song."

Denmark then refused the offer and the airfield was stripped of most of its equipment. Denmark now is regretting its costly decision, for the whole base had had to be refitted during the winter.

WATER KEPT ICE-FREE

Method Used Successfully in Arctic Circle Port

PORT BRABANT, Northwest Territories (Canadian Press)—A method of keeping waters ice-free was used successfully last winter around the main wharf at this outpost 200 miles inside the Arctic Circle.

A diesel-driven air compressor and two galvanized steel pipes were laid to form a ring on the harbor floor five feet from the wharf.

Bubbles of air rising from the pipes brought up warmer water from the bottom and created a current, preventing the formation of ice.

Although the temperature dropped to 54 below and five feet of ice formed elsewhere, the wharf area remained clear.

The system was established after heavy ice floes damaged the wharf the previous year.

Port Brabant is at the mouth of the Mackenzie River and the wharf is used in summer to handle cargo destined for DEW (distant early warning) line radar posts and other arctic settlements.

WEATHER EYES OPEN

Eskimo, Girding for a Hard Winter, Tells How He Knew

Ernest J. Christie, New York City's weatherman, tells this story to show what he thinks of long-range forecasting based on non-meteorological evidence, the UPI says.

"Far up in the North," Mr. Christie said, "a meteorologist nooticed an Eskimo building an igloo with walls of almost double thickness. Deeply interested, the weather man decided the Eskimo somehow must know a severe winter was ahead.

"When asked, the Eskimo said he was sure a hard winter was in prospect.

How did he know?, was the next question.

'Well,' replied the Eskimo, "I noticed the white man has extra big coal piles this year.'"

LIGHT ICEBERG CROP FORECAST FOR 1960

WASHINGTON (Science Service)—Fewer icebergs than usual will plague shipping off Newfoundland's Grand Banks in 1960.

Extremely light field ice conditions off Labrador indicate that the crop will be rather small, Lieut. Comdr. Robertson P. Dinsmore of the International Ice Patrol at Woods Hole, Mass., told Science Service.

He said, however, that it is really impossible to predict exactly how many icebergs will float south of the Forty-eighth Parallel and into the world's busiest shipping lanes each year.

Field ice conditions and iceberg conditions go hand in hand, he said, even though the two have entirely different origins. Field ice, small chunks of frozen sea water, never rises very high in the water. Icebergs, huge pieces of glaciers that break off into the sea, may tower high above the surface of the water despite having about 85 per cent of their mass beneath the surface.

Their height above water makes icebergs especially prone to erosion by heavy waves. Heavy field ice tends to keep the water calm so that wave action of the bergs is kept to a minimum. The lack of much field ice off Labrador therefore would indicate a rather light iceberg season.

The Ice Patrol, supported by sixteen nations and run by the United States Coast Guard, maintains a close surveillance on the icebergs that enter the Grand Banks area throughout a season that runs roughly from late February through August.

Northwest Town Builds Up

YELLOWKNIFE, Northwest Territories (Canadian Press)—Largest community in the Northwest Territories, Yellowknife has 619 telephones listed in a new directory.

Arctic Fossil Site

Fossils of mammoths and other extinct animals have been found in the New Siberia Islands, north of Siberia in the Arctic Ocean.

Canada Is Planning Probe of Arctic Ocean

NORTHERN SHELF TO BE SURVEYED

Economic Potential of Area Sought, Especially Its Metal, Oil and Gas

By TANIA LONG
The New York Times.

OTTAWA—Canada will embark this year on a major research project that will probe deep into the secrets of the Arctic Ocean.

This long-term study of the 1,500 miles of continental shelf on the rim of the Polar basin north of the Arctic archipelago is regarded as an important step forward in the development of the nation's economy.

Continental shelves—sometimes extending several hundreds of miles from the mainland underwater—are known to be potentially rich in minerals, including oil and gas. Canada knows the location of the shelf on its east and west coasts, but so far it has only guessed how it runs in the far north.

In fact, the Soviet Union is far ahead of Canada in charting the forbidding wastes of the sea ice in the Canadian Arctic. Information supplied by Russian scientists will be used at the start by the Canadian expedition.

Soviet oceanographic data indicate that the northern continental shelf extends from 100 to 200 miles from Canada's northern mainlands, in a northeasterly direction to the North Pole.

Starting at what seems to be the middle of the 1,500-mile shelf line, Canadian scientists will move outward from the northern islands over about 400 miles of frozen ocean, going over the area thoroughly with scientific instruments. Oceanographers and hydrographers will study the topography of the ocean floor, probe the depth, and measure the movements, temperature and chemical properties of the water.

Geologists will study the composition of the shelf's floor, geophysicists will diagnose the structures underlying the floor and fisheries' officers will study fish and sea mammal life and the shelf's potential for such life.

In sum, this coordinated attack by scientists of many departments, carried out under the direction of the Department of Mines and Technical Surveys, will reveal the potential as well as the natural resources of the shelf.

The project takes on added importance in view of the recent recognition of Canada's sovereign rights in the exploitation of the resources of her continental shelf, by the eighty-six-nation conference in Geneva in 1958 on the law of the sea.

Since this recognition, the Canadian Government has been under increasing pressure from the mining and petroleum industries to start the survey of the area on the rim of the Polar basin. There is already evidence of the richness of Canada's resources in her Arctic regions and in the lower part of the archipelago. In fact, much of this territory is already leased for exploration and being drilled for oil and gas by United States and Canadian companies.

Of perhaps greater significance in getting the study started is Canada's desire to shoulder her own research responsibilities in the Polar basin, where both the Soviet Union and the United States have been active for many years.

Among the discoveries by the Russians during their topographical survey of the floor of the Arctic Ocean, for instance, was a new mountain range that runs right to the edge of the Canadian Arctic islands. Another was their finding of an undersea volcano.

Research by the United States has centered for many years on ice islands. American scientists have gained valuable knowledge from the journeys of the submarines Nautilus and Skate beneath the Arctic ice.

Canada considers she has an obligation to world science to provide certain data that can be obtained only on her side of the Polar basin. To this end, the Canadian Government will set up two permanent geophysical stations at Alert, on Ellesmere Island, site of the northernmost joint Canadian-United States weather station, and at Mould Bay on Prince Patrick Island. A fixed geomagnetic station will also be established at Isachsen on Ellef Ringnes Island.

It is in the field of gravity that Canada, with her great land masses in the Arctic, believes she has a responsibility to the world to provide coverage in the region for geodetic purposes. Gravity measurements are fundamental to geodesy—the science that determines the shape and form of the earth. These measurements have been lacking in the high latitudes, and the work of the gravity experts on the forthcoming expedition is expected to supply much valuable data.

No security conditions are involved in the survey, and all information gathered during the survey, which will eventually cover the entire continental shelf area, will be made available to anyone interested.

Between fifty-five and sixty scientists and technicians will travel to the Arctic next March, under the leadership of Dr. E. F. Roots, a young geologist of the Department of Mines and Technical Surveys. Most of the work will have to be done before the end of June. When the ice begins to melt, aircraft are unable to land and the Arctic Islands turn into immense mud pies.

The expedition will split into several groups and work out of a base camp established at Isachsen. The men will travel in light planes, helicopters and motor toboggans, which are motorized adaptations of the dogsled capable of pulling up to a ton of equipment.

One of the chief difficulties the men will encounter is knowing where they are. Compasses do not work north of the magnetic pole. The Canadians will be the first to try out an adaptation of Decca, an aircraft navigation system, in order to keep in touch with their bases and to know within a few hundred feet exactly where they are.

ESKIMO IS ORDAINED

First of Race to Be Received Into Anglican Church

RANKIN INLET, Northwest Territories (RNS)—The first Eskimo to be ordained in the Anglican Church in Canada is the Rev. Armand Tagoona, 35 years old.

Mr. Tagoona was ordained at a ceremony here, 300 miles north of Churchill on the shore of Hudson Bay, by Bishop Donald B. Marsh of the Arctic Diocese, whose headquarters are in Toronto.

ASBESTOS FIELD FOUND

Ungava Peninsula in Quebec Has Large Mineral Deposits

OTTAWA (UPI)—A large asbestos field, which may contain 7,000,000 tons of the mineral fiber, has been found on the Ungava Peninsula in northern Quebec, the Canadian Government announced.

However, Quebec mining authorities said it is doubtful that there is a market for the asbestos at present.

TRACKED VEHICLES AID ACCESS TO NORTH

CALGARY, Alberta (Canadian Press)—A major problem of land transportation in the Canadian North is gradually being overcome by tracked vehicles capable of moving huge payloads into remote areas inaccessible by conventional means.

R. R. Hemstock of Calgary, a transportation expert with Imperial Oil Ltd, outlined to the first international symposium on Arctic geology the development of cross-country vehicles capable of traveling over treacherous muskeg twelve months of the year.

Exploration and oil drilling in parts of the northern territories are limited to three or four months of the year when the muskeg—soil laced with water and ice particles—is frozen.

Imperial and Shell Oil have been testing and putting to practical use tracked vehicles that can carry loads up to twenty tons evenly distributed over wide lightweight tracks; he said.

One of the vehicles, the Nodwell, developed by a Calgary company, exerts a ground-bearing pressure of about two pounds a square inch, a fifth of that exerted by conventional machines.

"These vehicles have become practical in the last two years although mechanical improvement is still required," Mr. Hemstock said. "A significant improvement in the over-all transportation picture in the North may be expected."

Radio to Employ Eskimo Language

TORONTO, Mar. 15 (AP).—The Board of Broadcast Governors yesterday heard its first application for a radio station that would broadcast part time in the Eskimo language.

W. B. Parker, on behalf of a company to be incorporated under the name of the Eskimo Broadcasting Corp., said the listening audience would be between 5,000 and 7,000 Eskimos, whites at trading and police posts, nursing stations and missions and could include some 4,000 Indians around the southern area of Hudson Bay.

Russian radio stations, using a powerful signal, are beaming programs in English and Eskimo into the Canadian north.

CANADIAN ARCTIC NOW A SCIENCE ZONE

MONTREAL (Canadian Press) —Research in the Canadian Arctic now is more a matter for scientists than for the "old northern hands" who first explored it, says the former director of the Arctic Institute of North America.

Alan T. Belcher, who retired recently after three years at the helm of the continent's foremost establishment for the study of the north, is himself one of the oldtimers, but he feels the field has passed from an era of exploration into a scientific phase.

"Our task now is to get detailed scientific information, and for this we must have minds which have had the advantage of extended university training," he says.

Mr. Belcher got his knowledge of the arctic the hard way—as a member of the Royal Canadian Mounted Police, who frequently doubled as dentist and obstetrician for his eskimo charges in the north.

A "barracks baby" born in the force's division headquarters at Calgary where his father, then a sergeant major, was stationed, Mr. Belcher joined the police as a trumpeter at 16 years of age, and during the next thirty-six years rose to the rank of deputy commissioner, which his father had also held.

Replacing George Watson in 1956, he took over direction of the organization formed in 1945 and financed by the United States and Canadian National Research Councils and the Carnegie Institute.

ARCTIC HEAT SOURCE

Atomic Oxygen Over North Pole Causes Warm Air

LOS ANGELES—A hitherto undefined energy source over the North Pole at high altitudes has been found by Dr. W. W. Kellogg of the Rand Corporation.

The source of heat is a release of chemical energy stored in atomic oxygen. Despite the darkness of the Arctic winter, at a sixty-mile altitude over the North Pole the temperature is 40 to 60 degrees Fahrenheit hotter than during the period of the summer sun.

In fact, it is believed to be hotter over the North Pole than over any other portion of the globe at a similar altitude. The cold air over the North Pole at lower levels sucks the upper atmosphere downward, causing some warming by adiabatic compression.

The Cause of Icebergs

Most icebergs reaching North Atlantic shipping channels are the offspring of about twenty glaciers on Greenland's west coast.

Russians Name Cape For 2 U. S. Airmen

LONDON, Mar. 5 (AP).—The Russians have named a remote Arctic cape for two American airmen who died in a crash there thirty-one years ago. The place is on the Chukchi Peninsula, near the mouth of the River Amguyema, on the Bering Strait.

The Moscow radio said today the point has been named Two Pilots Cape in memory of Lt. Carl B. Eielson, a pioneer polar flyer, and air mechanic Earl Borland. They were reported missing during a snowstorm in 1929 after flying from the American schooner Nanook, then wintering in the Arctic ice.

In January, 1930, two Soviet airmen flew to the scene and recovered the Americans' bodies from the ice.

SOVIET IS ENLARGING ITS ARCTIC RESEARCH

MOSCOW, March 2 (AP)— The Soviet Union announced today that it had reinforced its Arctic fleet and was setting up more research stations in the polar area.

The official press agency, Tass, reported that two new Soviet expeditions would work in the Arctic this year.

It said the northern route linking the Atlantic and Pacific by way of the Arctic Ocean would become a great traffic lane in the next seven year.

One new expedition will install a research on Novosibirskie Island and relieve exporers manning the Soviet drifting North Pole-8 Station, Tass said.

The second will establish fifteen automatic radio weather stations on ice floes in the Polar area.

Tass quoted Vyacheslav Frolov, director of Leningrad's Arctic and Antarctic Institute, as saying the Soviet network of more than 100 polar weather and radio stations had acquired immense importance.

He also said the institute had sent out about 600 scientific expeditions in the last forty years, Tass reported.

Soviet Plans New Arctic Post

MOSCOW, March 15 (AP)— A Soviet expedition left by air today in search of an Arctic floe suitable for use as another North Pole research station, the official press agency Tass reported. The station will be called "North Pole 9."

Soviet Expedition Leaves

MOSCOW, Feb. 24 (AP)—An expedition left Leningrad today to do research for navigation maps around Franz Josef land, a group of about 100 Soviet islands north of the Arctic Circle. Tass, the Soviet press agency, said another expedition would leave tomorrow to study the Severnaya Zemlya Archipelago in the Arctic.

Spitsbergen Oil Search Slated by 2 Concerns

OSLO, June 16 (AP)—Two international oil companies will prospect for oil on the Norwegian Spitsbergen Archipelago in the Arctic sea this summer, according to the newspaper Verdens Gang.

Four American oil experts from Caltex (the California Texas Oil Corporation) arrived yesterday and will leave for Spitsbergen July 4. Their equipment, including two helicopters, will be shipped on a freighter from Bergen.

Odd Birketvedt, Spitsbergen governor, confirmed that both the Royal Dutch Shell group and Caltex wanted to search for oil on the bleak Archipelago.

Shell will send four experts next week.

Relieve Ice Floe Team

MOSCOW, Apr. 7 (AP).—A team of Soviet scientists headed by Nikolai Blinov has relieved the staff of the Soviet "North Pole-8" floating station on an Artic ice floe, Tass reported today. The returning staff, led by Vyacheslav Rogachev, has been conducting studies from the station since it was established last April on a floe pack about 4½ square miles in diameter, northeast of Wrangel Island.

Soviet Team Lands on Floe

LONDON, April 16 (AP)— The Moscow radio reports that Soviet explorers have landed an advance party for a long-term research station on a drifting floe off the Novosibirsk Islands near the North Pole. About 100 tons of gear and supplies are being landed by plane, it said.

Largest Icebreaker Delivered to Soviets

HELSINKI, June 11 (UPI). —The Soviet Union today took delivery here of the largest conventionally - powered icebreaker in the world, the 15,340-ton Moskva. Built by the Waertsila Co., it will be based at Murmansk.

Another Moskva-class icebreaker,the Leningrad, is to be delivered in 1962 by Waertsila. A third is called for under a Soviet-Finnish five-year trade agreement, but the actual order has not been placed.

Fat Content Low in Diet Of Eskimo

OTTAWA (CP).—Some theories about the fat content of the Eskimo's diet and body may be shaken by information being compiled by the Canadian Health Department's nutrition division.

Contrary to some other findings, there are indications that eskimos have a lower fat content in the blood than other North Americans and Europeans. Their body lining of fat is thinner, too.

In fact, suggests Dr. J. E. Mongale of the nutrition division, non - Eskimos may well have a higher fat content in their daily food than the eskimo, who often is depicted as sitting in an igloo gnawing on a chunk of raw meat and blobs of blubber.

"We probably hide our fat in pastries and other foods," he said in an interview.

Work in Greenland shows that the fat content of the diet for eskimos ranges between 10 and 26 per cent, as compared with about 40 per cent for North Americans, Dr. Monagle said.

A similar Alaska study published recently supports the Canadian study, he said. Eskimos in the Alaska National Guard were unable to consume as much fat at meals as other members.

Dr. Monagle said the division is trying to learn more about fat and the incidence of coronary disease and arteriosclerosis in eskimos. He expressed skepticism of any suggestion that the eskimos have a low rate of heart disease. For one thing, many of them don't live past middle age, and therefore can't be considered coronary risks. And some may die of a heart attack without the ailment being properly diagnosed.

Dr. Monagle is putting together scientific and other observations accumulated during the last few years. Some information was provided by a 1947 clinical survey conducted during the annual summer cruise of a government supply ship in the eastern Arctic. Other data came from more recent studies.

Getting information on the eskimo diet is not easy. The original primitive Eskimo is gone. All that can be compared are the diets of Eskimos more or less dependent on Southern food.

Trappers Seek To Save Herds Of Caribou

OTTAWA (AP) — A team of trappers and hunters is working with white-collar scientists in Canada's North West Territories to save diminishing herds of the Barrens caribou.

An eight-man team headed by professional hunter Wilf McNeill, 43, sets trap lines and spreads caches of poisoned meat in a campaign against wolves and wolverines, killer enemies of the caribou.

Scientists are fighting another threat—low birthrate. The scientists are examining range lands, diet and caribou habits in hopes of solving the problem.

The programs are beginning to show results but Joe Bryant, superintendent of game for the Mackensie district, says: "another 10 years with the calf drop the same as the last 10 and we are very likely to see the extinction of a species."

The Barrens caribou, distinguished by its hairy mane, long legs and broad, flat hooves, weighs between 200 and 700 pounds. It roams the vast treeless area bounded by Hudson Bay on the east, Great Slave and Great Bear Lakes on the west, the northern border of the prairie provinces and the Arctic Ocean. Both male and female have antlers.

ESKIMOS DISCUSS NEEDS

Sit as Members of Canada's Advisory Board in Ottawa

The annual meeting of the Eskimo Advisory Board took place in Ottawa recently according to the Canadian Weekly Bulletin.

The board, formerly known as the Eskimo Affairs Committee, includes representatives of the administration, the churches, health authorities, Royal Canadian Mounted Police and Hudson's Bay Company. Four Eskimos from the Arctic also sit as members.

This year the Eskimo representatives were selected from widely separated communities. Considerable importance was attached to their attendance because of the emphasis now being placed on the Eskimo voice in considering Arctic matters.

The board itself acts in an advisory capacity on any subjects relating to the Arctic which it may choose to consider. Housing, employment, education, health, co-operatives and culture are among the subjects discussed.

U.S., Soviet, Canada To Pool Arctic Data

By WALTER SULLIVAN
The New York Times.
Jan. 25

Soviet, American and Canadian scientists have reached a tentative agreement to exchange information about the floor of the Arctic Ocean so that a chart can be made of that little-known but highly strategic region.

The arrangement was made at a conference earlier this month in Calgary, Alberta. It still must be confirmed by the Soviet Government. However it has brought to light a reversal of policy by the United States Navy.

The Navy has hitherto made it a general rule that new soundings in waters deeper than 300 fathoms (1,800 feet) must be kept secret.

The reasoning was that a precise knowledge of deep-sea landmarks might enable an enemy to position his submarines with pinpoint accuracy and thus score a missile bullseye on an American city.

Another fear has been that, because of the peculiarities of underwater sound transmission, detailed knowledge of the ocean floor might make it possible for an enemy submarine to move with greater stealth.

Some scientists and mapmakers fought against keeping the soundings secret on the ground that it needlessly stifled their work. Ordinary deep-sea soundings, they said, were too imprecise for what the Navy feared. Likewise, the proven effectiveness of inertial guidance as a means for navigating submarines made the policy seem out of date.

According to Navy sources a new policy will be promulgated within the next few days declassifying almost all deep-sea soundings, including those of the Arctic Basin. In fact at the Calgary symposium the Navy presented a profile of the ocean floor obtained by the nuclear-powered submarine, Nautilus, on a recent cruise under the polar ice.

Virtually the only information that is to remain secret is that resulting from a survey of such fine-grained detail and precision that it would be useful for a missile-firing submarine. The continuous lines of echo soundings obtained by ships and submarines on ordinary cruises do not fall into this category, according to a source in the Navy Hydrographic Office.

The Calgary meeting was the First International Symposium on Arctic Geology and was held from Jan. 11 through 13.

A number of Soviet, American and Canadian scientists attended. One of the working groups at the conference discussed the problem of constructing a reliable bathymetric chart of the Arctic Basin—that is, the floor of the deep portion of the Arctic Ocean.

The group met for lunch with the symposium secretary, Derek W. R. Wilson of Calgary, as host. Among those present were Dr. F. G. Markov, head of the Soviet delegation, and Dr. Bruce C. Heezen, Dr. Kenneth Hunkins and William J. Cromie of the Lamont Geological Observatory of Columbia University.

It was provisionally agreed that the soundings and profiles necessary for such a chart would be sent by each of the three nations to Dr. Wilson, who would then make them available to any of the participants who wished them. It was not decided who would actually make the chart.

Soviet planes have made many hundreds of landings on the Arctic ice floes, on the American as well as the Eurasian side of the ocean. On most, if not all, these landings soundings were made. In addition the Russians have maintained some eight drifting stations on the Arctic floes, dating back to the period before World War II.

The soundings thus obtained went into the production of a bathymetric chart of the Arctic Basin, published in the Soviet Union several years ago. However, the actual soundings were not shown, and hence it is impossible to tell which portions of the chart are reliable and which are merely guesswork.

CALGARY, Alberta, Jan. 11 (Canadian Press) — Experts from thirteen countries today began a three-day exchange of highly-technical information aimed at providing science with its first comprehensive picture of the geology of the Arctic.

More than 1,000 delegates, including men from the Soviet Union, Britain and the United States, have registered.

Dr. W. C. Gussow of Calgary, president of the Alberta Society of Petroleum Geologists, the sponsoring organization, said attempts had been made for more than 100 years to get European, Asian and American nations to co-operate on Arctic development.

"By an exchange of geological information we hope to establish a world-wide correlation of information on the Arctic, especially between the Eurasian and American countries," he said. "What more logical place is there to start than in Canada, which has such a large area in the Arctic?"

TINY BISEXUAL FISH OBJECT OF RESEARCH

MONTREAL (Canadian Press)—An English-born postgraduate student at McGill University will spend his second summer in the far north this year, searching for the secret of the Arctic stickleback, a tiny fish that has puzzled biologists of two continents.

Milton Freeman of the university's biology department has left for the Belcher Islands, near the east shore of Hudson Bay, where he will carry on his research under the auspices of the Arctic Institute.

Mr. Freeman spent last summer at the same site, and laid away 100 pounds of supplies and a canoe for his return visit. He expects to live with a party of Eskimos during his stay in the north.

The three-inch Arctic stickleback is of interest to scientists because of its bisexual characteristics.

"It is rare to find both sexual functions in such a highly-evolved species as a fish," Mr. Freeman said before his departure, "although it is common in creatures lower down the biological scale."

YEAR ASHORE TOO LONG

Arctic Icebreaker's Captain Finds Voyages Restful

OTTAWA (Canadian Press) —Arctic ship Captain Marius Gagne has spent only one year ashore out of the last thirty-five years—and he says it was one year too many.

"That was the longest year of my life," said the stocky, dark-complexioned mariner, interviewed while in Ottawa for a conference of Arctic ship-captains.

He is used to the rumble and crash of the floating ice against the hull of his icebreaker, the Montcalm, but counts the insistent ring of an office telephone as one of the worst annoyances of his year ashore.

Captain Gagne sails out of Quebec every winter, and considers his summer voyages to the Arctic as something of a rest. The 51-year-old Arctic veteran shrugs off as "just routine" the threat of Arctic storms and the ever-present danger of his ship being holed by a great block of ice on the 2,000-mile Arctic journey.

Eskimo Grammar Published

OTTAWA, June 9 (UPI)—The first grammar on Eskimo as spoken in the Hudson Bay area went on sale today. The 250-page grammar was the result of twelve years of work by Alex E. Spalding, a 36-year-old lexicographer. The book contains a vocabulary ranging from abdomen (akiavinerk) to zipper fastener (siktaktok).

Dr. Roy Chapman Andrews Dies; Explorer and Naturalist Was 76

By The Associated Press.

CARMEL, Calif., March 11—Dr. Roy Chapman Andrews, explorer and naturalist, died here tonight of a heart attack at Peninsula Community Hospital. He was 76 years old.

Dr. Andrews, who had been living in retirement for several years in near-by Carmel Valley, gained world fame in the Nineteen Twenties through a series of expeditions to Central Asia. He was former director of the American Museum of Natural History in New York.

Ability Plus Showmanship

Dr. Andrews combined scientific ability with the showmanship necessary to obtain public financial support for exploration ventures of true scientific importance.

His integrity as a scientist was proved by his colleagues, who through the years elected him to membership in a host of scientific societies, presented to him many medals and honors, and on Jan. 7, 1935, named him director of the Museum of Natural History. He retired from this post in 1941.

Dr. Andrews started his studies in natural history in the fields around his home in Beloit, Wis., where he was born on Jan. 26, 1884. He wanted to be a naturalist and explorer, and spent most of his out-of-school hours along the banks of the Rock River.

There he watched birds and kept a record of their migrations. He taught himself taxidermy because he knew it was to be an important part of his future life. The first bird skin he made hangs in the Museum of Natural History alongside his more noted exhibits, such as the big whale that dominates the Hall of Sea Life.

Dr. Andrews was graduated from Beloit College in 1906 and came to New York with $30 in his pockets. He went straight to the museum and asked for a job. Told there was nothing for him, Dr. Andrews offered to scrub floors—and he did.

"Those floors were walked on by my scientific gods," he said later. "They were not ordinary floors to me and I didn't mind scrubbing them."

Soon he suggested that he be permitted to study whales on the Pacific Coast. He offered to serve without pay. The offer was accepted by the museum in 1908, and for six years he worked at gathering a vast store of information about whales in all oceans.

During this period he stalked whales, caught them, dissected them, drew them, noted their characteristics, went hunting for them in stormy seas and once jumped overboard when half a whale fell from the tackle on deck and killed the man standing next to him.

Dr. Roy Chapman Andrews

His books included "On the Trail of Ancient Man," "The New Conquest of Central Asia," "Under a Lucky Star," "Meet Your Ancestors," "Heart of Asia," and "All About Dinosaurs."

Probably his most popular book—read by chairbound explorers everywhere—was "Ends of the Earth." Another, "This Business of Exploring," also won wide acclaim.

A critic wrote several years ago, "Roy Chapman Andrews has never written a dull book or an unscientific one."

In 1931 Dr. Andrews was awarded the Hubbard Medal of the National Geographic Society in recognition of his discoveries in Asia. He received the honorary degree of doctor of science from Brown University in 1926 and from Beloit College in 1928.

During his career he also received the Elisha Kent Kane gold medal of the Philadelphia Geographical Society, the Charles P. Daly gold medal of the American Geographic Society, The Explorers Club medal, the Vega gold medal of the Royal Swedish Anthropological and Geographical Society, and the Loczy medal of the Hungarian Geographical Society.

In 1914, Dr. Andrews married Yvette Borup, a sister of a member of the party with Admiral Peary on his North Pole trip. They had two children, George Borup and Roy Kevin Andrews. They were divorced in 1931. In 1935, Dr. Andrews married Mrs. Wilhelmina Anderson Christmas, who survives.

GLACIERS HOLD SECRET

Clue to Climates of the Past Reported Locked in Ice

BOSTON (Science Service)—A clue to climates of the past is locked in the ice of glaciers, the American Meteorological Society meeting was told here.

Prof. Samuel Epstein of the California Institute of Technology, Pasadena, Calif., reported that the ratio of normal oxygen-16 to oxygen-18 is a clue to past weather history. This ratio can also be used to trace the current cooling of air masses during storms and the transfer of water from equatorial regions to cold areas.

Walter K. Queen Is Dead at 80; Antarctic Expedition Engineer

STAMFORD, Conn., June 14—Walter Kerr Queen, chief engineer for the second Admiral Richard C. Byrd Antarctic expedition in 1933-34, died today in a private hospital here. His home was at 16 Northway, Lucas Point, Old Greenwich. He was 80 years old.

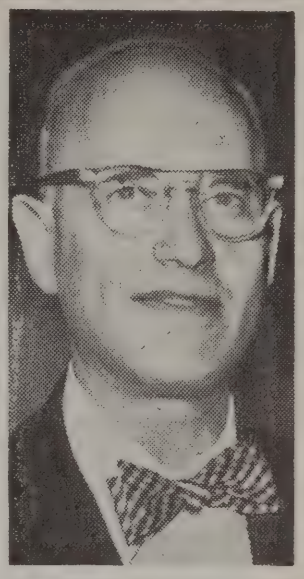
Mr. Queen was chief engineer for the New York and Puerto Rico Steamship Lines from 1900 to 1905. Then he became maintenance supervisor for the Boston Elevated Rapid, where he remained until 1912.

He founded the Q-P Manufacturing Company at Needham, Mass., makers of engineering supplies and was president of the company until 1947, when he sold it and retired.

Mr. Queen was a Navy officer in World War I and was the first naval officer to command the Ancient and Honorable Artillery Company of Boston. He was chairman of the Board of Commissioners of the Massachusetts Nautical School

He also made a trip to the Arctic regions in 1937, as a passenger with the Hudson's Bay Company. As a past master of Norfolk Lodge in Needham, Mass., he held a Masonic meeting at the most northern point on that trip. He held a similar meeting in Little America in the Antarctic in 1934. Both meetings were the first of their kind at these distant points.

Surviving are his widow, Gertrude, and two daughters, Mrs. Evelyn Adams of Riverside and Miss Juanita Queen of Old Greenwich.



Sen. Richard L. Neuberger

Senator Neuberger

PORTLAND, Ore., Mar. 9 (UPI).—Sen. Richard L. Neuberger, forty-seven, who only last week announced he would seek re-election despite recent illness, died today of a cerebral hemorrhage.

Sen. Neuberger, who survived an attack of cancer in 1958, died in a hospital after he had been stricken at his home yesterday afternoon.

He was elected in 1954 as the first Democratic Senator from Oregon in forty years, unseating Republican Guy Cordon. His election gave the Democrats control of the Senate.

Surviving are his wife, Maurine; his parents, Mr. and Mrs. Isaac Neuberger, and a sister, Mrs. James Goodsell, all of Portland.

He began writing on his area for "The New York Times" in 1934, became its Northwest correspondent in 1939 and continued until election to the Senate. He was author or co-author of half a dozen books.

A big man, nearly bald and wearing an easy smile, Sen. Neuberger refreshed Washington by proposing sufficient taxation to support any new programs he advocated. Hiking and camping were among his hobbies and he was strong in support of conservation measures. More public housing and government support of health research also were high on his legislative "must" list.

Sen. Neuberger emerged from World War II as an Army captain, having spent most of his war service stationed at Whitehorse in Canada's Yukon Territory.

Wilkes Is Upheld on 1840 Antarctica Find

American's Sighting Supported—Once Was Ridiculed

By WALTER SULLIVAN

Jan. 10

An American whose claim to the discovery of Antarctica as a continent evoked ridicule abroad and a court-martial at home has received vindication from Australian explorers.

He was Lieut. Charles Wilkes of the United States Navy, who led what is often described as the first national exploring expedition sent forth by the United States. In 1840 it sailed about 1,800 miles along what Wilkes interpreted to be the coast of a great continent centered near the South Pole.

The new support relates to the portion of Wilkes's exploration that probably has been the most controversial. It also gives greater credibility to the contention that a United States expedition was the first to sight that side of Antarctica.

The coastline in question is south of eastern Australia. Even on the most recent maps by the United States it shows largely as a dotted line. However, two Australians have drafted a detailed chart based on their own exploration of the last two years and photographs taken by seaplanes from the 1947 expedition of the United States Navy.

Charles Wilkes

They have found a striking similarity between the shape of this coast as it has emerged and that sketched by Wilkes in 1840. Hence they believe that "the whole question of the reliability of Wilkes observations along this sector might well be reviewed."

The study was carried out by B. P. Lambert and Phillip G. Law. Mr. Law has directed all of Australia's operations in Antarctica during the last seven years in behalf of the Australian Department of External Affairs. They presented the results at a recent international symposium on Antarctica held in Buenos Aires.

To achieve a fit between the Wilkes map and their own they shifted his features 116 miles to the south and eighteen miles to the west. They felt such errors in navigation and observation were understandable because of the instruments of that day and Antarctic conditions.

The Wilkes expedition was probably the largest to invade Antarctic waters during the days of sailing ships and was also one of the most unfortunate. It comprised two sloops-of-war — the Vincennes and Peacock—the gun-brig Porpoise, the supply ship Relief and two New York pilot boats, the Sea Gull and the Flying Fish.

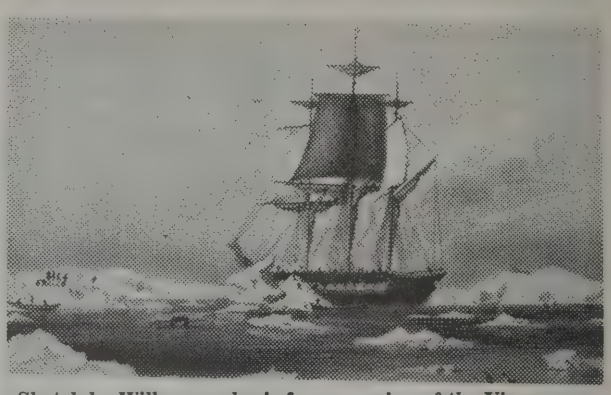
The Sea Gull vanished with all hands in a storm. Of the 585 men engaged for the expedition at home and en route, 127 deserted and twenty-three died or were killed by native islanders during stops on the voyage. Wilkes gave a chart of his discoveries to the British explorer, James Clark Ross, who later reported having sailed right over the position of Wilkes' "psuedo-Antarctic continent."

All that he could see was unbroken ocean, Ross said.

Instead of receiving a hero's welcome on his return to the United States, Wilkes was accused of tyranny and fraud. Some of his disgruntled subordinates specifically accused him of having falsified his claim that the expedition sighted land on Jan. 19, 1840.

Such a sighting would have given the United States expedition the honor of having first seen the side of Antarctic facing Australia. The French, under Dumont D'Urville, made their first landfall a day later.

Wilkes's court-martial is described in a newly published book, "America in the Antarctic to 1840," by Philip I. Mitterling. A gunner on the Vincennes and two midshipmen on the Peacock testified that they had definitely



Sketch by Wilkes was basis for engraving of the Vincennes

This drawing was submitted by Wilkes as a view of Ringgold Knoll from the Vincennes during the voyage in 1840.

MOST I.G.Y. FINDINGS EXPECTED THIS YEAR

CLEVELAND (Science Service) — Between 90 and 95 per cent of the information collected during the International Geophysical Year is expected to be in by the end of 1960, Dr. Hugh Odishaw and Dr. Pembroke J. Hart of the United States National Committee for the I.G.Y. told an American Chemical Society meeting here.

More than 30,000 scientists of sixty-seven nations have been getting information on subjects ranging from space probes to ocean depths since the beginning of the I.G.Y. in July, 1957.

This information is now being collected at three centers — one in Washington, one in Moscow, and one that is a cooperative effort on the part of various scientific societies in Europe and Japan. The nations seem to have lived up to their international agreements on the exchange of information, Dr. Hart said.

Nuclear Power Plants Urged In Antarctica

WASHINGTON, Mar. 9 (UPI).—Sen. Harry M. Jackson, D., Wash., urged Congress today to authorize immediate construction of nuclear power plants at the three American bases in Antarctica.

He said this would cut the cost of power, light and heat at the south polar installations by 75 per cent over twenty years. He recommended that construction start by December, when the next short building season begins in the polar region.

Sen. Jackson made his proposal in a letter to Rep. Chet Holifield, D., Calif., chairman of the legislative subcommittee of the Congressional Atomic Energy Committee. Sen. Jackson is a member of the committee.

Small nuclear power plants, the largest costing $9,000,000, could be used in place of conventional fuel plants at the McMurdo Sound, Byrd and South Pole bases, he said. Sen. Jackson said fuel takes up more than 70 per cent of the cargo space on ships supplying the bases.

To deliver 1,000 gallons of fuel by air from the unloading point at McMurdo Sound to Byrd Station or the South Pole station, he said, take 4,500 gallons of airplane fuel. Delivered cost of fuel at McMurdo is $1 to $3 a gallon and to the other stations between $7 and $10 a gallon.

seen land on the day in question, but others were uncertain. The charge against Wilkes was finally dropped.

The tricks played by Antarctic temperature inversions have become better known. In such situations a layer of warmer air above that hugging the icy surface bends light rays and causes a feature more than 100 miles away to appear near at hand.

Until now, however, the Wilkes discoveries in the sector newly explored by the Australians were largely discredited. Even American maps omit the features that he charted, such as Cape Hudson, Ringgold Knoll and Eld Peak. The new Australian map shows them.

By reworking the records, the Australians have found that sightings reported by various American sailing ships from their different positions on different days check out with prominent features on the coast as they actually exist. Also the American drawings resemble these mountains and capes.

Last February, after their chartered ship, the Magga Dan, had fought its way through heavy pack ice, the Australians landed west of a glacier tongue that extended fifteen miles into the ocean. They climbed a mountain, which they named Magga Peak, and established its precise geographical position by a series of sun sights.

This has made it possible to use the aerial photography, both by Australian and United States planes, to construct a map of the coast. It was photographed in 1947 from Cape Freshfield eastward by United States planes.

Australia asked the United States for the 1947 photographs and flight logs, which were delivered and helped make possible the new evaluation of Wilkes's exploration.

The New York Times Jan. 10, 1960

VINDICATION? Early in 1840 the ships of the Wilkes expedition, separated by storms, made their way independently along the Antarctic Coast. The bristle-like contours are those charted by Lieut. Charles Wilkes. They have been superimposed by the Australians on their new map of the region. The features and ship tracks reported by Wilkes have been moved 116 miles south and eighteen miles west. The triangles represent Australian locations for the geographical features that the Wilkes chart places far out to sea.

Byrd's Flag Carried Back to South Pole

Auckland, New Zealand., Feb 1 (AP).—The American flag which Rear Admiral Richard E Byrd carried over the North and South Poles more than 30 years ago was taken to the South Pole again Thursday by United States Deep Freeze Comdr. Rear Admiral David Tyree to commemorate the first landing there by a Hercules aircraft. The Hercules took nearly seven tons of cargo from McMurdo Sound for the Pole station men.

Cold Summer

On a typical February day at the South Pole—one of the Antarctic "summer" months—the temperature is about 20 degrees below zero.

Antarctic Germs Pose New Questions on Life

By ROBERT BRANSON
North American Newspaper Alliance

The discovery of disease germs alive in ice 100 feet below the South Pole could prove to be one of Antarctica's biggest science stories in years.

The germs are believed to be 100 years old or more.

If preliminary deductions are correct, the find means that life exists—perhaps for indefinite stretches of time—at far colder temperatures than previously believed possible.

Antarctica's thick icecap may not be the dead, sterile mass it was thought to be. It may contain multitudes of living organisms.

The germs have been identified as staphylococcus, a bacteria strain that attacks skin and mucous membrane and stubbornly resists antibiotic drugs. It is often blamed for outbreaks of sickness in hospitals.

Dr. Sidney Tolchin of Easton, Pa., said he found the bacteria about 100 feet down in an ice pit directly under the United States South Pole station. The pit was carved to study polar history by coring out successive layers of ice and snow.

Dr. Tolchin, a Navy medic with rank of lieutenant, was the leader of 17 Americans who spent a year in isolation at the pole between December, 1958 and 1959.

He reported that the germs showed up under microscope lenses when ice was hoisted from the pit and melted. The organisms appeared to be frozen into a state of suspended animation, he said, but came to life and multiplied when warmed in a culture broth.

George Toney, co-ordinator of the United States Antarctic research program at its McMurdo Sound headquarters, said Dr. Tolchins' report "raises all kinds of questions, starting with how staphylococci got there in the first place. Were the bacteria blown in by winds? How did they survive so long?"

More intriguing still: If germs can live a century at 65 degrees below zero (average for the South Pole ice pit), do other creatures lie dormant deeper down, survivors perhaps from prehistoric ages when Antarctica—as fossils show—was warm and green?

Will future diggers find frozen but living eggs that can be hatched to produce strange forms of animal life?

WHALE AID SOUGHT

Australia Wants Hump-Backs Protected in Antarctica

CANBERRA, Australia—Charles F. Adermann Minister for Primary Industry said recently the Australian Government would seek international discussions on protection of hump-backed whales in Antarctic waters, according to the Australian News and Information Bureau.

Australia's whaling industry was founded on the hump-back, hunted in the Antarctic by whaling fleets of several nations.

Japan Hails Whalers

TOKYO, Apr. 2 (AP).—The Japanese government says its whalers in the Antarctic were the only ones to harpoon their quota of blue whales in the 1960 season, taking 5,216 as compared with 5,037 last year. It says catches of other whalers, with their quotas, were: Soviets 2,768 (3,000); British 1,716 (2,500); Norwegian 4,112 (5,800), and Dutch 864 (1,200).

Little Americas Slumber Under Ice

By John C. Waugh
The Christian Science Monitor

Little America V, Antarctica

Little America V is Antarctica's Brigadoon.

This celebrated Antarctic settlement has little of Brigadoon's charm. It is cold. It is uninviting. But, like the fabled city of the musical comedy, Little America V is a village consigned now to quiet slumber.

A year ago when the International Geophysical Year ended, it was left deserted. Snow covered its roofs and ice crowded its rooms.

On Nov. 9 it was roused once more, possibly for the last time. A party of Americans, headed by Army Lt. Col. Merle R. Dawson, awakened it and salvaged much of the equipment left lying there through the last Antarctic winter.

By the end of December Little America V was again committed to the enroaching ice, to the fate of all things left unattended in Antarctica.

This reporter saw it for his first and probably final time Nov. 24. A party of us, including Rear Admiral David M. Tyree, commander of the United States naval support force in Antarctica, flew there from the naval air facility at McMurdo Sound.

Little America V now lies buried under eight feet of snow and ice. When it was built in 1955 in preparation for the International Geophysical Year, its buildings stood atop the snow.

Its rooms, once warm and cozy, now are ice cold. Ceilings sag under the heaped mantle of ice and snow. Walls are warping inward under the heavy burden. Ice has piled up on floors and layers of ice, often carved into striking patterns, sheath the overhead beams and wires.

Little America V was one of the major United States scientific stations of the IGY. Some 200 men manned it during the 18 months of that massive scientific effort. When they left in early January, 1959, it was thought they had intended to step out and come right back. Books still lie on desks. Beds are still made Pictures still hang on the walls

When Colonel Dawson and nine other men returned to Little America V, their Brigadoon was out of sight. Only antennas and stove pipes poked out through the snow mantle. A broom sticking out of one stove pipe marked the position of the main building.

"The entire first day we spent digging for a hole to live in," says Colonel Dawson. It took about six hours to shovel down to the front entrance where warmth and comfort lay.

Since then Colonel Dawson's men, whose ranks have swelled to about 40, have dug out some 52 pieces of heavy machinery and put them on the line again

In mid-December the colonel led a team of 12 men in a tractor convoy over "Army-Navy Drive," which leads from Little America inland to Byrd Station. They took with them much of the equipment they salvaged here. What is left will be carried out by ship.

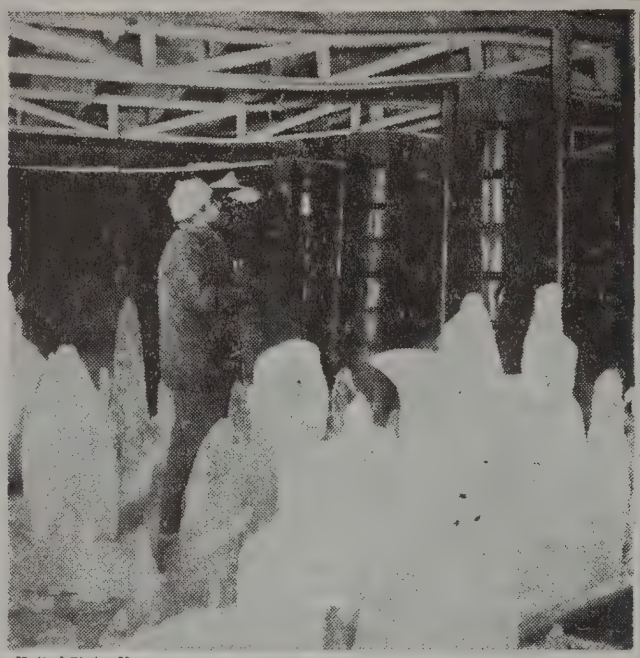
There have been four previous Little Americas built here on the edge of the Ross Ice Shelf. All of them now are ghost towns sleeping under the snow.

Admiral Richard E. Byrd established the first one on the shelf in 1929. All have been difficult to resupply and maintain. All eventually will float out to sea. The ice shelf is constantly calving off, huge chunks of it floating seaward as tabular icebergs.

Eventually the ice will calve back as far as Little America V, which sits only five miles from the sea wall, and it, too, will drift out to sea. The process may take years.

Meanwhile, there are no plans to inhabit any of the Little Americas again. Admiral Tyree is considering reopening the tiny group of buildings that abut Kiel Field, a short distance from the main Little America V station.

It would be maintained as a small meteorological station and as a landing strip.



United States Navy

Beams Buckle and Stalagmites Grow

POLAR ICE DEPTH MEASURED FASTER

Use of Radio Altimeter May Lead to Determination of Antarctic Structure

The New York Times.

A rapid technique for measuring the depth of polar ice has been developed by Army Signal Corps scientists.

The new method employs a modified aircraft radio altimeter. It promises in some instances to replace the laborious, time-consuming seismic soundings that have been used for such measurements, according to the Signal Corps announcement.

The radio soundings can be made as fast as the operator of the equipment moves across the ice surface. The device is designed to be placed on the front of a weasel, a small tracked carrier for cargo and personnel.

It is believed that helicopters, skimming a few feet above the surface, may also be used as survey vehicles.

The method was developed by Amory H. Waite of the Army Signal Research and Development Laboratory at Fort Monmouth, N. J.

The 58-year old engineer, a veteran of seven expeditions to the Antarctic and five to the Arctic, hopes the method may make it possible to determine conclusively the structure of the Antarctic continent under its masses of ice.

Some specialists believe part of the continent consists of a string of islands buried under the ice cap.

The potential speed of the method may make it possible to visualize geographical features under the Antarctic ice, Mr. Waite said.

The radio soundings have been tested at hard ice depths only up to 1,250 feet in the Antarctic and Greenland, he said, but it seems probable that improvements in equipment will make possible deeper probes.

It is estimated that ice, some of it two miles deep, covers more than 5,000,000 square miles in the Antarctic. In Greenland, about 750,000 square miles are under ice that reaches a maximum of 7,000 feet.

The basis of the device is a modified ten-watt radio altimeter. Plate-shaped antennae are mounted on the ends of a horizontal boom. Radio waves are transmitted downward from one antenna, and the signals, reflected from solid ground under the ice, are picked up by the other.

Radio waves in space travel at a velocity of 186,000 miles a second. Mr. Waite estimates that the velocity through ice is 50 per cent less.

The device measures depth by timing the extremely small interval between the transmission of a signal and its return to the receiving antenna. Data emerge as a tracing on an oscilloscope, which is similar to a television tube.

The conventional method of mapping polar ice depths has involved an analysis of sound waves from explosions set off on or near the surface.

Though accurate, this method is time-consuming and expensive, and requires a research team that includes a trained seismologist.

In a test of the new method last year in Greenland, Mr. Waite and a colleague surveyed the ice depth along a three-mile course in two hours. The same strip had been previously surveyed by conventional methods in a project lasting several weeks, he said. A comparison with the seismic results showed the new method to be accurate.

Almost a decade ago Mr. Waite first suggested that radio might be used as a yardstick of ice thickness. He took the first vertical soundings of the Antarctic continental ice cap near Wilkes Station in January, 1958. These, down to 500 feet, were confirmed by seismic methods.

Big U. S. Ski Transport Makes First Landing at Antarctic Base

By WALTER SULLIVAN

Jan. 27

The first heavy transport plane to land on the inland plateau of the Antarctic has set down at Byrd Station in the heart of Marie Byrd Land.

This ski-equipped plane is so huge that it can ferry an entire tractor party, vehicles and all, to a selected starting point deep in the interior. It is expected to revolutionize Antarctic exploration and research.

The plane is the turbo-propeller C-130 Hercules, made by the Lockheed Aircraft Corporation. It delivered several tons of supplies to the remote Marie Byrd Land outpost Saturday evening, New York time, but news of the landing did not reach Washington until yesterday.

In addition to being able to lift whole tractor parties, the plane has the following capabilities:

¶It can deliver to any inland station instruments and supplies that previously had to be parachuted, with resulting damage and losses. The annual saving in parachutes alone is expected to be $1,000,000.

¶It can land almost anywhere on the Antarctic ice sheet, in contrast to its predecessor, the C-124 Globemaster, whose wheels made it entirely dependent on a single air strip, cleared on the hard ice of McMurdo Sound. This gives it a far greater margin of safety.

¶Its independence of the McMurdo strip lengthens the season for resupply flights from roughly two to about seven months. This means that scientists can fly in at the first spring daylight and remain until winter darkness has almost come.

Such a schedule should reduce the number of people who need remain all winter and should make it easier to recruit experienced scientists who shun a prolonged absence from their jobs.

Seven ski-equipped Hercules aircraft have been assigned to the current resupply operation by the Air Force from the Sixty-first Troop Carrier Squadron, based at Stewart Air Force Base in Tennessee. The Navy, which is in over-all command of the resupply operation, hopes oventually to obtain four such planes for use in the Antarctic.

The first ski-equipped Hercules was delivered to the Air Force a year ago next Saturday. It was primarily developed for resupply tasks in the Arctic. It can carry up to 15.5 tons of cargo at 335 miles an hour. With a smaller payload and extra fuel tanks it has a range of 3,240 miles.

This has been achieved by two under-the-wing pylon fuel tanks, carrying 450 gallons apiece, and two 500-gallon tanks in the cargo compartment. The main skis are 20.5 feet long and 5.5 feet wide.

The four-engined planes are expected to deliver 200 to 400 tons of food, fuel and building supplies in the next few weeks, both to the South Pole and to Byrd Station.

The annual snowfall has been burying buildings of the Antarctic outposts under so much weight that they are bound to be crushed sooner or later. This means that the buildings will have to be gradually replaced. Various schemes have been considered to make it possible to jack up the new structures or drag them out of their holes each spring to prevent their permanent burial.

The Hercules planes have been equipped with four 1,000-pound Jato units to give them an additional jet assist on take-off when heavily laden or when in the rarefied air of the South Polar plateau.

Aboard the Hercules that landed at Byrd Station was Rear Admiral David M. Tyree, who heads the Navy's resupply project, Operation Deep Freeze—60.

3 Ashore on Isle In Antarctic, 1st in 58 Years

BOSTON, Jan. 14 (AP).—The Coast Guard received word today that the Boston-based ice breaker Eastwind and a Navy helicopter teamed up to make history yesterday by landing three men on Scott Island in the Antarctic. They were the first to touch the island since its discovery fifty-eight years ago.

Scott Island is 1,600 miles south of Wellington, New Zealand. It was named for the British polar explorer Robert Scott.

A message from the Eastwind said the landing party consisted of Navy hydrographic oceanographer Robert B. Starr, of Buffalo, and Suitland, Md.; Lt. Berry L. Meaux, U. S. C. G., of Joliet, Ill., and Silver Spring, Md., and Lt. (j. g.) Francis M. Dreessen, U. S. N. R., helicopter pilot, of Tuscarora, Md., and Beachwood, N. J. They went ashore briefly to take aerial photographs for mapping, gather geological specimens and obtain gravity readings.

Antarctic Icebreaker Damaged

WELLINGTON, N. Z., Jan. 11 (Reuters)—The 5,100-ton United States Navy icebreaker Glacier has damaged both propellers in McMurdo Sound in the Antarctic and is returning to Lyttelton near Christchurch as fast as possible. A report to the United States Antarctic Headquarters at Christchurch today said new propeller blades would be fitted.

ANTARCTIC TREK ENDS

9 Men Travel 1,600 Miles in 4 Months Across Victoria

CHRISTCHURCH, N. Z., Feb. 11 (UPI) — An international team of nine men, including six Americans, completed this week a 1,600-mile trek across Victoria Land in the Antarctic.

A radio report received here said the men were under the supervision of a psychologist, William M. Smith of George Washington University in Washington. He studied the behavior patterns of the men during the four-month ordeal.

The trip primarily was designed to observe weather and map control points along the way. The party was picked up at the head of Tucker Glacier by a United States Navy plane, which flew them to the American base at McMurdo Sound.

Sun Compass

Since neither the magnetic nor the gyroscopic compass will work near the North and South Poles, Albert H. Bumstead of the National Geographic Society invented the sun compass.

BIG AID TO ANTARCTIC EXPLORATION: Heavy steel beams are unloaded from an Air Force C-130 Hercules. The first of these ski-equipped transport planes has landed at Marie Byrd Land in the Antarctic. Prop-jet plane, capable of lifting an entire tractor party, vehicles and all, is expected to revolutionize Antarctic exploration.

U. S. Ships Pierce Antarctic Ice To Reach Thurston Peninsula

Two Icebreakers Are First to Penetrate the Isolated Region From Sea

By PHILIP BENJAMIN
The New York Times.

ABOARD U. S. S. GLACIER, Off Antarctica, Feb. 15—Two Navy icebreakers reached Thurston Peninsula today. The peninsula, dividing the Bellingshausen and Amundsen Seas, had never before been reached by water.

The Glacier and the Burton Island, making up the two-ship expedition under the command of Capt. Edwin A. McDonald of Medford, Ore., found the going relatively easy.

Despite fifteen-foot sea ice and large flat-topped icebergs the ships found open water all the way in.

The expedition steamed up to the ice shelf of the peninsula in mid-afternoon.

Through overcast and snow squalls, the sun occasionally glinted off mountain peaks many miles away.

The landfall was made near Cape Flying Fish, the extremity of the peninsula.

The Glacier, with the Burton Island behind, sailed slowly and nervously east along the ice shelf while seamen sang out fathometer readings. Existing charts do not show depths in this area.

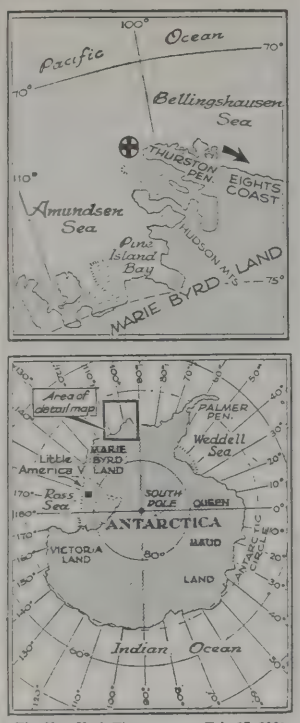
Captain McDonald's plan is to try to pick his way along the Eights Coast—the south shore of the Bellingshausen Sea between 88 degrees and 97 degrees W. If ice prevents this, the expedition will reverse course and sail west into the Amundsen Sea, which is equally unknown.

At some point along the coast a helicopter will drop a Grasshopper onto the ice. The Grasshopper is a rocket-shaped device that transmits weather data for three or four months without stopping. It is powered by batteries.

Earlier today it was announced that the expedition had passed the point of the farthest previous penetration of the area.

In 1775 Capt. James Cook reached 71 Degrees 10 Minutes South. When the Glacier passed this latitude she was about thirty miles from Thurston Peninsula.

The Glacier and Burton Island met early this morning at Latitude 71 S. and Longitude 104 W. The Burton Island had sailed from Chile Jan. 28 and the Glacier from New Zealand Feb. 6.



The New York Times Feb. 17, 1960

Navy ships penetrated ice to the Thurston Peninsula (cross upper map). They then steamed east (arrow).

On Friday, the Burton Island penetrated the Bellingshaussen Sea to 70 degrees 24 minutes S., but owing to heavy ice, poor visibility and lack of weather information, she turned north again and then west for the rendezvous with the Glacier.

On this penetration, the Burton Island reached Peter I Island. The icebreaker stood some six miles off the bleak, forbidding island while two Navy oceanographers took samples of the seawater.

The ice-covered island, fourteen miles long and five miles wide, rears abruptly out of the sea. Occasionally a shaft of cold sunlight pierces the gray overcast and glinted off Lars Christensen Peak, an extinct volcanic crater nearly 4,000 feet high.

The island was named for Peter I of Russia. It was discovered in January, 1821, by the Russian Admiral Fabian von Bellingshausen, for whom the sea was named. It lies at Lat. 68 degrees 50 minutes S., Long. 90 degrees 35 minutes W.

The island has rarely been visited. In 1927 a Norwegian whaler sailed around the island but was unable to make a landing.

In 1929 another Norwegian vessel, the Norwegian, took soundings, charted the island and set up a provisions depot. Heavy pack-ice prevented approaches closer than twenty miles in 1931. The American ice-breaker Bear approached to within four miles in 1941.

There was nothing between the icebreaker and the island but some thin slabs of ice, but the Burton Island's captain, Comdr. Griffith C. Evans Jr. of Hollister, Calif., did not try to make a landing.

According to the Navy's Sailing Directions for Antarctica, a very strong undertow and breaking seas around the island make landing from small boats very dangerous, and there appeared to be no place suitable for either of the Burton Island's two helicopters to land.

Caps Twenty-Year Effort

By WALTER SULLIVAN

After just twenty years of repeated attempts by Navy ships to penetrate the ice off the coast of Marie Byrd Land, two icebreakers have broken through.

The effort to reach this coastline, comparable in length to the West Coast of the United States, had, until recently, strong political overtones.

Its hinterland, a region roughly the size of Alaska, had been unofficially claimed for the United States, but no satisfactory ship route to it had been discovered.

Last Dec. 1, a twelve-nation treaty was signed in Washington shelving such claims in favor of cooperative international scientific research.

For the last several years the Soviet Union has spoken of plans for penetrating the Bellingshausen Sea. At one time a Soviet station was planned on Thurston Peninsula, but this seems to have been deferred.

The first landing on Thurston Peninsula was on Dec. 30, 1946, when nine Americans were strewn over its humped ice cap by the explosion of their plane.

After almost two weeks of intense suffering, six of them were found alive. A Navy seaplane, sister ship of the one that exploded, landed alongside the peninsula and took them off.

Attempts to reach this coast date back to the earliest days of Antarctic exploration. The first men known to have endured the winter night of the South Polar regions were aboard the Belgica, frozen immovably in the ice for an entire year in 1898. Their drift carried them within sixty miles of the peninsula.

The first sighting was by a plane based on Admiral Richard E. Byrd's ship, the Bear, in February, 1940. The peninsula was named for W. Harris Thurston of New York City, a textile manufacturer and designer of the windproof "Byrd cloth."

One of the deepest penetrations of the ice off this coast was made by a thin-skinned destroyer, the Brownson, during the desperate effort to find the downed fliers after the 1946 crash. The following year the Navy icebreakers Burton Island and Edisto made a powerful thrust toward the peninsula, but were thrown back by heavy ice.

In 1955 their sister ship, the Atka, made another attempt and came within 125 miles, but urgent orders from Washington forced the ship to reverse course. Since then the Navy's annual plans for Antarctic operations have called for attempts to reach this coast.

In 1956, 1957 and 1959 the Glacier, the Navy's most powerful icebreaker, was scheduled to make a try, but ice damage to itself or to other ships forced postponement. In 1958 the Westwind plunged into the ice, but severe damage to its rudder forced a retreat.

Thus both the Glacier and Burton Island, which finally won through, had been frustrated earlier. Off-shore winds tend to keep the water along the coast free of ice and hence, having reached it, the two ships may be able to map much of that little-known coast.

U. S. Icebreaker Sets Mark in Antarctica

ABOARD U. S. S. GLACIER, Tuesday, Feb. 16 (UPI)—Glacier, largest icebreaker in the United States Navy, today bulldozed her way through ice to a point in the Antarctica's Amundsen Sea farther than had ever been reached by ship.

As of 7:50 A. M. Monday, Glacier and her companion ship, Burton Island, had reached a stretch of calm waters at 71 degrees latitude and 104 degrees East longitude. They were surrounded by gigantic icebergs, some an estimated two miles in length and as much as 300 feet high.

Comdr. Philip W. Porter of Segganum, Conn., captain of the Boston-based Glacier, said his records showed that the southernmost penetration of the ice-bound Amundsen Sea up until now had been made by Russian Capt. Thaddeus Bellinghausen, who reached a latitude of 69 degrees 52 minutes in 1821. The Belgian ship Belgica later equalled this mark.

Petrified Trees at Antarctic

Petrified trees have been found 300 miles from the South Pole, indicating that Antarctic once was a fertile continent.

ICEBREAKER SAILS FOR TRAPPED SHIP

U. S. Vessel in the Antarctic Leaves Expedition to Go to Aid of Argentines

By PHILIP BENJAMIN
The New York Times.

ABOARD U. S. S. GLACIER, Off Antarctica, Feb. 24—This icebreaker was on her way early today to help the Argentine icebreaker trapped near Marguerite Bay on the west side of Palmer Peninsula.

The Glacier has also been instructed to help remove seven men, two of them seriously ill, from an Argentine scientific station in Marguerite Bay.

Word was received from Buenos Aires that the icebreaker General San Martin, attempting to aid the men, had become trapped in heavy ice. The message said the San Martin had been trapped for four days and compressed ice pack was exerting serious pressure on her hull.

Capt. Edwin A. McDonald, leader of the Bellingshausen Sea operation in which the Glacier was engaged, ordered the icebreaker to the aid of the Argentines. The Glacier took on fuel from the Burton Island, second ship of the expedition, and left from near Cape Flying Fish at the tip of Thurston Peninsula.

The Glacier was expected to reach the Argentine ship in four to seven days, depending on weather.

The New York Times. Feb. 26, 1960

RESCUE MISSION: United States icebreaker (1) to aid trapped Argentine vessel (2).

The Glacier and the Burton Island had been scheduled to sail around Thurston and into the Amundsen Sea for further exploration of this unknown area of the Antarctic. The Burton Island will remain to do oceanographic work, but according to Captain McDonald, the exploration is at an end. By the time the Glacier rescue work is done winter will be too near for any more exploring.

Just ten days ago the Glacier and the Burton Island made Antarctic history by being the first ships to penetrate the Bellingshausen Sea to the coast.

After punching through thick ice along the coast of the Bellingshausen Sea, as far east as Fletcher Islands—or what was believed to be Fletcher Islands—the expedition retraced its route.

The ships again sailed past Grasshopper Bay, near where they had placed a "Grasshopper," or automatic weather transmitter, on Noville Peninsula.

The ships sailed warily over and around "Porters' pinnacles," the jagged pinnacles that rise nearly vertically from the ocean bottom near shore. They have been waggishly named for the Glacier's captain, Philip W. Porter Jr.

Three pinnacles stood above water. They had been submerged when ships passed earlier. One pinnacle rose thirty feet from the surface.

Our position was 71 degrees 41 minutes South, 99 degrees 30 minutes West.

Behind the ice cliff, which rears 150 feet from the surface, ice-covered ground rose in tiers. Peaks of what were believed to be the Walker Mountains, which run along Thurston Peninsula, could be seen dimly through the mist. The mountains were discovered twenty years ago this Saturday on a plane flight of the expedition of Rear Admiral Richard E. Byrd.

The Glacier's small helicopter was aloft nearly every day, looking for leads. At one point, when the Glacier was surrounded by heavy ice, Lieut. Comdr. William R. Kannheiser of Methuen, Mass., went aloft and saw open water twenty miles ahead, where we headed.

Antarctica Gets a Paper

CHRISTCHURCH, N. Z., June 13 (UPI)—Antarctica now has its own newspaper, The Penguin Wrapper. The weekly, which is published as regularly as atmospheric conditions permit radio communications, carries world news, baseball scores and local gossip. The readers are Americans and one Russian who are weathering the Antarctic winter on Ross Island in Mecmurdo Sound.

Polar Lightning Scarce

Lightning is seldom seen in the polar regions.

POLE 'PENINSULA' VIEWED AS ISLAND

Antarctic Expedition Finds Some Data on the Region Subject to Revisions

By PHILIP BENJAMIN
The New York Times.

ABOARD U. S. S. GLACIER, Antarctic, Feb. 24—At a hurriedly called symposium tonight the findings of the abruptly ended Bellingshausen Sea expedition were set forth.

The expedition, which had planned to go next into the Amundsen Sea, was canceled early today. This powerful icebreaker, one of the two ships of the expedition, was ordered to go to the rescue of the Argentine icebreaker Gen. San Martin, beset in ice near Marguerite Bay, and evacuate seven men from the Argentine station on the bay. The U. S. S. icebreaker Burton Island, second ship of the expedition, was ordered to return to Chile after conducting oceanographic work.

At the symposium these findings were announced:

¶Thurston "peninsula," discovered in 1940, is beyond doubt an island, apparently part of the archipelago extending east along Eights Coast in the Bellingshausen Sea.

¶Noville Peninsula, midway along Thurston, may be a smaller island.

¶The Fletcher Islands, at the Eastern end of Thurston, were not located.

¶The Bellingshausen Sea-Amundsen Sea area is extraordinarily scant in vertebrate life, particularly birds.

Philip M. Smith of the National Science Foundation reported at the symposium that the expedition had been unable to reconcile data on the Fletchers gathered by the Byrd Expedition in 1940 and by the High Jump Expedition in 1946 and 1947 with sightings taken in the area a few days ago.

In these sightings Dr. Robert Chusman Murphy, distinguished ornithologist, found the Bellingshausen Sea area to be virtually a biological desert. Only four species of birds were seen. These were some emperor penguins, a few adeliei, some skua gulls and one snow petrel.

Dr. Murphy reported that Arctic terns that had migrated from far north latitudes were confined almost exclusively to the northern edge of the ice-pack. That may indicate the ecologic segregation of the Arctic tern from the Antarctic tern, divisions often confused in the past.

The biological "poorness" of the area might be explained in part by the fact that the coast is usually jammed with ice and thus is inhospitable to living things.

SOVIET SHIP HAILS U. S. IN ANTARCTIC

Whaling Vessel Praises Trip to Bellingshausen Coast—Asks for Weather News

By PHILIP BENJAMIN
The New York Times.

ABOARD U. S. S. GLACIER in Bellingshausen Sea, Antarctic, Feb. 20—A Soviet whaling ship sent congratulations today to the United States expedition here for having been the first to reach the Bellingshausen seacoast.

The message was received via Australia and Pearl Harbor. Besides offering congratulations it also asked for data on whales and ice.

The message, from the Russian ship Sovietskaya Ukraina, said:

"Warmest congratulations on successfully carrying out Antarctic operations. Please radio information about ice conditions in Ross, Amundsen, Bellingshausen Seas. If you have encountered whales please let me know. Best regards."

The message was signed, "Captain Solyanik, flag captain, Soviet whaling fleet, and Captain Manager, whaling factory, Sovietskaya Ukraina."

The captain of the Glacier, Comdr. Philip W. Porter of Sigganum, Conn., replied:

"Thank you for your kind message. Northeast wind has pressurized heavy pack leaving no exit leads our area. Notable lack of marine and bird life here. Saw few whales north of 70 degrees and one south. Best wishes and good hunting, you and your crews."

The expedition is now preparing to sail west around the Thurston Peninsula into the Amundsen Sea. At present, the ships are off Cape Palmer.

Temperatures here have not been particularly low, averaging 25 degrees. But the Bellingshausen is living up to its sinister reputation. Except for one day of clear weather, snow, fog and heavy ice have prevailed. The expedition is hoping for a south wind to sweep off the continent and push the ice pack north, leaving open water near the ice shelf.

It is believed that an Antarctic storm a few days before the ships arrived here broke up the pack and permitted fairly easy penetration, a penetration that will erase from the books on the Antarctic the sentence:

"No vessel has ever been able to reach the continental shores of the Bellingshausen Sea."

U. S. PARTY LANDS ON ANTARCTIC ISLE

Helicopters Off Icebreaker Help Put Group Ashore—Overnight Camp Set Up

By PHILIP BENJAMIN

The New York Times.

ABOARD U. S. S. BURTON ISLAND, Antarctica, Feb. 29—A series of helicopter landings and landing by boat were made today on Peter First Island. The helicopter landings were believed to be the first made on this desolate, ice-covered rock in the sea.

Disaster was barely averted when a landing craft from this icebreaker was thrown against some rocks and nearly capsized after having reached shore. Eight men who scrambled from the craft were later picked up, wet and cold, by one of the ship's helicopters.

The first helicopter landing was made this morning by Lieut. (j. g.) William J. Hale of Miami, Okla., who flew a small pontooned craft. The next was a larger helicopter flown by Lieuts. (j.g.) Jerry G. Cox of Lawrence, Kan., and Dale Myers of Anaheim, Calif.

The larger craft set down on a small rounded plateau about 4,700 feet high.

The pilots reported that the summit of this volcanic island appeared to be about 300 feet higher.

The island's greatest height had previously been thought to be 4,000 feet, but today's landings showed that the summit was at least 5,000.

In the afternoon, a small helicopter flew Warren Borgeson, a topographer from Menlo Park, Calif., to the island.

A larger helicopter carried a geologist, Harold Hubbard of Washington. This reporter also went along.

Flying close to shore, we saw brown and reddish cliffs rising almost vertically. Capping the cliffs was ice 100 feet thick.

The ice cover followed indentations and rises and drops of the shore line. It gave the effect of a sort of Great Wall of China made of ice.

Two glaciers flowed down the cliffs, one to the left and one to the right. The glaciers' arms ended in lion-like claws of ice resting on the water. Icebergs from ice cliffs and glaciers surrounded the island.

We landed on a fairly even and uncrevassed stretch of ice about 700 feet above the sea. Soon after we set foot on the island, Mr. Borgeson and Mr. Hubbard began making an overnight camp. We then took off and circled the island several times.

Meantime, a landing craft had reached the rocky shoreline where green water crashed against the rock and ice. After landing Campbell Craddock, a geologist from Minneapolis, and Chief Warrant Officer Edward Doss of Mankato, Minn., the craft was thrown broadside onto a rocky beach and almost turned over. No one was injured. All were returned safely to the ship by a helicopter that hovered over the spot and pulled them up by a hoist into the craft.

Others in the boat were Lieut. (j.g.) Robert S. Hendricks of Santa Barbara, Calif.; Ensign Guy N. Carrol Jr. of Bangor, Me.; Ensign David C. Martenson of Framingham, Mass.; Radioman William F. Ogara Jr. of Hinsdale, Ill.; Bosun's Mate G. T. Armstrong of Tacoma, Wash.; Bosun's Mate C. L. Rench of Omak, Wash.; Seaman G. L. Lilley of Des Moines, Iowa, and Engineman D. L. Johnson of Toledo, Wash.

Thus another handful of men was added to the handful that has set foot on the island.

CONCEPCION, Chile, March 11—The navy icebreaker Burton Island arrived here today after a sixteen-day voyage from Antarctica.

On the way to Chile, the Burton Island stopped at Peter the First Island at the threshold of Bellingshausen Sea and helicopters made the first landings there.

The helicopters made aerial photographs of the island and measured its tallest peak, Lars Christensen. They found it to be 5,800 feet. The previous estimate had been 4,000, but the altimeter of helicopter hovering just above the peak read 5,800.

It was also found that the top of the peak, never seen before, was suitably flat for placement of an automobile data transmitter.

The peak has a small depressed area 150 yards in diameter, probably an extinct volcanic crater filled with snow.

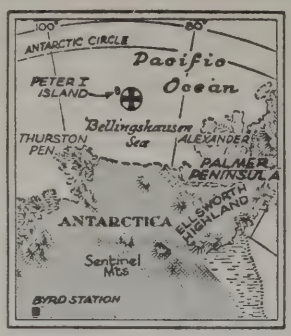
An astronomical station was also set up on the northeast side of the island and rock weather data transmitter.

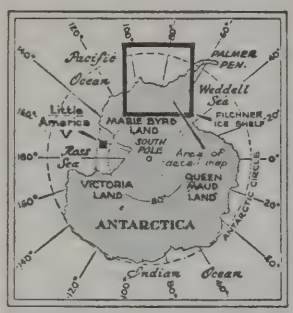
Specimens of two unidentified birds were also taken, probably Arctic or Antarctic terns, before the ship left the area.

A landing craft that had been flung sidewise onto a rocky beach, luckily without injury to the men in the boat, was recovered.

The Burton Island will spend more than month doing oceanographic work off the west coast of South America in collaboration with Chilean and Peruvian oceanographers.

She is scheduled to return to her home base at Seattle in May and go to the Arctic in July.





The New York Times March 5, 1960

POLAR ISLE: Naval helicopter lands on Peter I Island (cross on detail map).

ANTARCTIC BIRDS RESPECT BARRIER

Murphy Finds They Do Not Cross Sea Boundaries in the Polar Region

The New York Times.

April 10

Robert Cushman Murphy, world authority on sea birds, has returned from the Antarctic impressed with these basic findings:

¶Sea birds mark boundaries of the sea, which exist as do land boundaries.

¶The position of Thurston Island, until recently believed to be a peninsula, has been found erroneously charted fourteen miles east of its true position.

"My observation of sea birds," he said last week at the American Museum of Natural History, where he is Lamont curator emeritus of birds, "showed very beautiful correlations with the findings of the bathythermograph recordings of the position of the Antarctic Convergence."

The bathythermograph makes a recording of water temperatures at various depths, and was used to show where southern temperate and the Antarctic waters meet. This is known as the Antarctic Convergence.

He found that the sea birds, almost as if caged by an invisible wall, did not break through the aerial barrier over the convergence. Thus, on the northern or warmer side, he found such birds as the sooty shearwater.

On the polar side, he said, he found such "truly Antarctic birds as the blue petrels, Antarctic whalebirds, snow petrels, Antarctic fulmars, the Antarctic sooty albatrosses and others."

"The sea has its boundaries as do the continents," he added.

His observations of the convergence were made between the South Shetland and the Falkland Islands.

Mr. Murphy said that the Bellinghausen Sea - Amundsen Sea area had been reconnoitered by air but never before reached by ship. He said Admiral Richard E. Byrd saw it in 1940 and a naval task force airplane photographed it in 1946.

The ornithologist said helicopters from his ship, the Glacier, put scientists ashore and made "excellent fixes [positioning] of peaks." He said this visit established that Thurston Peninsula was actually an island and that its position was recorded erroneously on charts.

The New York Times

STUDIED ANTARCTICA: Robert Cushman Murphy, an authority on birds of sea.

Tourists for Antarctica?

CHRISTCHURCH, N. Z., Feb. 26 (AP).—Rear Adm. David M. Tyree, commander of the American "Operation Deepfreeze," thinks Antarctica would make a great tourist attraction because its scenery "is dramatic beyond belief." He says a tourist ship could navigate Antarctic waters from late January through February.

Western Antarctica Found 'Under' Ice

By John C. Waugh
The Christian Science Monitor

Los Angeles

United States polar scientists have unlocked a major Antarctic secret.

After three years of long and arduous traverses, which have carried them across 15,000 miles of frozen wastes, they have charted the land beneath the ice sheet of West Antarctica.

They have discovered that most of the land surface under the ice of West Antarctica lies well below sea level.

This means that the western half of the great continent probably consists of a long, slender peninsula and a mountainous island, or series of islands. All the rest of the land under the crushing load of ice lies below the level of the sea. If the ice were gone, the picture would consist of two clumps of rugged mountain ranges girt about by large bodies of water.

The region commonly known as West Antarctica includes the Ross and Filchner Ice Shelves, Elsworth Highland, Marie Byrd Land, and the Palmer Peninsula. The region is bounded to the seaward by the Ross, Amundsen, Bellingshausen, and Weddell Seas.

East Antarctica, the other half of the continent, is the vast area that includes the Polar Plateau, Queen Maud Land, Wilkes Land, the American Highland, and Victoria Land. Scientific traverses there, conducted mostly by Soviet and British Commonwealth scientists, indicate that under its ice mantle lies a solid land mass, most of it above sea level.

The island character of West Antarctica has been suspected for a long time. But now four veteran Antarctic scientists, writing in Science, the magazine of the American Association for the Advancement of Science, have reported two significant discoveries that give convincing proof.

The four scientists are C. R. Bentley, N. A. Ostenso, E. C. Thiel, and A. P. Crary. The first three are from the Antarctic Research Center of the University of Wisconsin. Dr. Crary is the chief scientist of the Antarctic Research Program of the National Science Foundation.

Their two major discoveries are these:

1. A mammoth channel more than 1,000 miles long and more than a mile and a half deep slices West Antarctica practically in half. It runs from the Ross Sea to the Bellingshausen Sea, and is filled with ice more than two miles thick.

The scientists estimate that the total weight of this incredibly huge chunk of ice has pushed the bedrock in the channel down about five-eighths of a mile. The weight of the ice has pushed down other regions of Antarctica also, but only about half as far.

2. The Filchner Ice Shelf, which floats in the water of the Weddell Sea, is much larger than anybody first thought. Second in size only to the Ross Ice Shelf, it stretches inland about 500 miles and is about the size of California.

The new-found channel and the two great ice shelves take up most of the area of West Antarctica. The only major features above sea level are the Palmer Peninsula and the coastal ranges of Marie Byrd Land. The scientists believe the Palmer Peninsula extends southward as far as the Horlick Mountains, meeting East Antarctica there.

Traverse parties have not followed the great channel all the way from the Ross Sea to the Bellingshausen Sea. But from the available evidence the four scientists infer that the channel does extend that far. A traverse to the coast of the Bellingshausen is scheduled for the 1960-61 summer season. It is expected to confirm the inference.

The four Antarctic scientists also speculated in their report on how the great chunk of ice that fills the deep channel was formed.

Ice-surfaced contours suggest to them that the present ice sheet actually originated as two separate ice caps atop two separate mountain areas—the Executive Committee Range along the Marie Byrd Land coast and in the area between the Sentinel and Horlick Mountains.

The two ice caps converged many millenniums ago, inching out into the lowland toward each other and coming together over the waters of the channel. Finally the water itself froze through.

How long ago was this? Nobody knows. But a young geologist from the University of Kansas is trying to find out. Dr. Edward J. Zeller, assistant professor of geology at Kansas, has for two years been making a study of Antarctic rocks in an attempt to put a precise date on when the continent turned cold. Fossil evidence found on the continent indicates that Antarctica was once a temperate, and possibly even a tropical land.

Vast ice masses recently discovered in Antarctica are roughed out as gray areas on map above. An ice-filled channel separates Marie Byrd Land from the rest of Antarctica, and the Filchner Ice Shelf has been extended over what had been considered land.

ANTARCTIC EFFECT ON MEN DESCRIBED

Most Common Complaint Is Headache and 'Big Eye,' Psychiatrists Are Told

ATLANTIC CITY, May 13—Psychological interviews to determine how Antarctic personnel weather the strange new world were described today by a Navy psychiatrist.

The most common complaint of the eighty-five men in various outposts interviewed was tension headaches and Antarctic insomnia, known as the "Big Eye."

Capt. Charles Samuel Mullin, chief of neuropsychiatric service of the Naval Hospital in Philadelphia, told a final session of the American Psychiatric Association here that the "wintering-over" man got along pretty well in spite of a few complaints.

The first thing he learned, the psychiatrist said, was that in the tight little society in the Antarctic he could ill afford to alienate the group for anyone in it. Thus, aggression is carefully controlled and violent acts are rare.

Men interviewed at several stations indicated that the danger, hardship and cold were the least important causes of stress.

The individual's adjustment to the group, the sameness of the atmosphere and the absence of regular sources of emotional gratification cause most of the stress, it was found.

Headaches, which Captain Mullin attributed largely to "controlled aggression," were a common complaint, more so among officers and scientists than among enlisted men.

Enlisted men, they said, engaged in more activity to blow off steam, while the officers and scientists did not indulge in their horseplay, swearing, loud complaints and vigorous insults.

Probably the most common complaint was the "Big Eye," which occurred not in the twenty-four-hour summer day, but in the dark winter season. Men who had never experienced insomnia before complained of it. Dr. Mullin speculated that it was probably a result of tension and reduced physical activity.

Intellectual inertia also hit the men hard. Many had brought reading matter and projects, such as learning a language, playing a musical instrument, or finishing correspondence courses.

Most of them, including the scientists, could manage only the lightest reading. Memory and concentration were also impaired.

ANTARCTIC LURING WORLD SCIENTISTS

U. S. Bid to Sail Ice-Packed Bellingshausen Sea Tops Research of 12 Nations

By PHILIP BENJAMIN
The New York Times.

Jan. 24

The Antarctic continent will continue this year to be a vast, international workshop.

Twelve countries are conducting research and exploration in the Antarctic, extending and expanding work that has gone on for the last four years. Last December, eleven of the countries signed the Antarctic treaty, making the continent a scientific preserve.

Perhaps the most significant exploration to take place this year will be an attempt by two United States Navy ice-breakers to penetrate the ice-clogged Bellingshausen Sea and reach the seacoast.

No ship has been able to reach that coast since the sea was first entered about 140 years ago by the Russian Admiral, Fabian von Bellingshausen. The sea that bears his name is southwest of the tip of South America.

During the exploratory voyage, scientists abord the ships will conduct research in biology, geology, cartography, oceanography and glaciology.

Besides the work at United States bases, Antarctic research will be carried on by Argentina, Australia, Belgium, Chile, France, New Zealand, Japan, the Union of South Africa, the United Kingdom, Poland and the Soviet Union.

All these countries except Poland signed the Antarctic treaty. Another signatory, Norway, has temporarily halted its Antarctic research program.

Under the aegis of the United States Antarctic Research Program, research is continuing at seven installations. Three of them—the South Pole, Byrd Station and McMurdo Sound—are operated by the United States.

At Hallett Station a cooperative effort of Americans and New Zealanders is continuing. Americans are also working with Argentinians at Ellsworth Station and with Australians at Wilkes Station. Ellisworth and Wilkes were formerly run by the United States but were turned over to the other countries at the end of the International Geophysical Year in 1958.

At Scott Base, the New Zealand station near McMurdo, Americans are working with the New Zealanders.

Scientific studies at all Antarctic stations include research into aurora, geomagnetism, upper atmosphere physics, cosmic radiation, meteorology and weather observations and ice studies.

For the first time South Africa is conducting scientific research on the Antarctic continent. Her previous efforts have been limited to islands far removed from the continent.

The South Africans, under an agreement with Norway, have temporarily taken over a Norwegian station on the Princess Martha Coast of Queen Maud Land. The South Africans were landed on the coast Jan. 9 by a Norwegian vessel.

The Soviet Union is continuing its work at its Mirny and Vostok bases.

In December, the Russians nade a 1,680-mile oversnow trek from Mirny on the Indian Ocean to the South Pole. The Russians had originally planned to continue across the continent, but for reasons unexplained they retraced their route.

Poland is conducting scientific work at the Soviet station Oazis on the Wilkes Coast. Japan will continue research at her Showa station.

Official United States Navy

Danish Kista Dan Pried From Grip of Ice by USS Glacier

FUCHS OFF TO ANTARCTIC

Explorer Planning to Set Up Stonington Base Again

LONDON, Jan. 4 (Reuters)—Sir Vivian Fuchs, leader of the 1958 British trans-Antarctic expedition, left here today by air for Amsterdam on his way back to the Antarctic.

Sir Vivian will make a four-month tour of British bases. The trip will take him back to Stonington Island on the coast of Graham Land, where the idea of crossing Antarctica first took shape.

The British explorer, director of the Falkland Islands Dependencies Scientific Bureau, will attempt to visit nine bases run by the bureau and hopes to re-establish the Stonington base.

It was in 1949, while he was blizzard-bound on an expedition operating from Stonington, that he first conceived the epic trans-Antarctic crossing.

One of the main findings of the trans-Antarctic expedition was that the land underlying the ice along the route was all above sea level.

He will lead twenty-seven scientists in an attempt to restore the British base at Stonington Island and relieve the scientists at five other British winter stations on the 2,000-mile circuit along the Antarctic perhiphery.

Sir Vivian said that in addition to re-establishing the Stonington base, which was evacuated last year because of adverse weather conditions, the expedition hopes to do extensive aerial photography for the compilation of a more detailed topographical map of the Antarctic region.

Commenting on summer activities in the Antarctic by other nations. Sir Vivian said he hoped United States investigators would clear up doubts over whether Antarctica was really two large islands joined by surface icepack.

BRITISH SHIP FREED FROM ANTARCTIC ICE

WASHINGTON, March 7 (UPI)—The Navy announced today that the American icebreaker Glacier had freed the British expedition ship Kista Dan from the ice in Marguerite Bay off Palmer Peninsula in the Antarctic. The Kista Dan had been trapped for about two weeks.

The Navy had a dispatch from the Glacier saying that both ships were heading north and west to escape what was described as the "worst ice conditions in this area in many years."

"It appears Glacier will have to tow Kista Dan over part of the escape route," the dispatch said.

The thirty-seven-man British expedition, headed by Sir Vivian Fuchs, is engaged in an annual effort to resupply and relieve personnel on Falkland Island.

Cap. Erwin McDonald of the Glacier radioed that the ships "must head back the way the Glacier came and hope that the track plowed by the Glacier will remain open."

The Glacier reached the Kista Dan today after reaching yesterday the side of the San Martin, an Argentine icebreaker that became trapped in Marguerite Bay February 22. The Glacier found that the San Martin had freed itself.

Short Navigational Season

The navigation season on the Mackenzie River between Great Slave Lake and the Arctic Ocean lasts about four months.

Japan Antarctic Team Returns

Mar 19

All 14 members of the third Japanese Antarctic observation team returned to Tokyo Saturday evening aboard a SAS plane after a successful one-year wintering at Showa Base on Ongul Island, off Prince Harald Coast.

The expedition team had been engaged in extensive observation and surveys of the Antarctic since January last year. They were replaced by the fourth 15-member wintering team, headed by Tetsuya Torii, last January 19.

The team, headed by Masami Murayama, flew in from Cape Town, where they had arrived aboard the expedition ship Soya from Showa Base.

They were given a warm and rousing welcome on arrival at Tokyo International Airport by about 200 persons, including their family members, Education Minister Takechiyo Matsuda and Kiyoo Wadachi, chairman of the Japan Science Council.

During their stay in the Antarctic, the team also conducted scientific surveys in connection with the International Geophysical Year (IGY).

They included observation of aurora australis, cosmic rays, terrestrial magnetism, meteorological conditions, glaciation and earthquakes.

TOKYO, Jan. 17 (Reuters)—The Japanese icebreaker Soya has returned to the Antarctic to unload remaining supplies for Showa Base on Ongul Island, the Antarctic observation headquarters said here today.

TOKYO, Feb. 10 (AP)—The Japanese icebreaker Soya was reported in trouble in the Antarctic today for the third successive year.

The Maritime Safety Board said the 2,736-ton ship had been unable to move for the last week because of thick ice after landing a fifteen-member team at Showa Base on Ongul Island.

On its first expedition to the Antarctic in connection with the International Geophysical Year two years ago, the Soya became stuck in the ice and was rescued by the United States icebreaker Burton Island. Last year, the Soviet icebeaker the Ob aided the Soya.

To avoid a repetition this year, the Soya had been remodeled to make her more efficient.

Cold Antarctica Once Fertile, Reds Believe

WASHINGTON, Feb. 6—Russian scientists have reported discoveries which suggest that now-frozen Antarctica was a fertile continent 200 to 300 million years ago.

Together with findings of other scientists, the new evidence indicates the south pole continent was warm once and received considerably more sunlight than it gets now.

This suggests to some scientists that the various continents shifted their relative positions on the earth's face in the remote past or that there was a change in the planet's axis of rotation.

RUSSIANS REPORT ON ANTARCTIC TRIP

LONDON, Jan. 5 (Reuters)—Seven Russian explorers have completed a hazardous Antarctice expedition, Tass reported today.

An earlier expedition reached the South Pole Dec. 26, the Soviet press agency said. The latest one, which had assistance from the air, reached the Komsomolskaya station today, covering 540 miles in 191 days, it said.

Traveling in two tracked vehicles deep into the continent, the group measured the height of ice and carried out geophysical observations from the Indian Ocean coast to the northern edge of the Sovetskoe Plateau, Tass said.

Snowstorms frequently interrupted observations.

Data collected by this and other expeditions will enable scientists to reconstruct a geophysical cross-section of Antarctica from the Indian Ocean coast deep into the continent, the agency added.

Soviet Expedition Begins

LONDON, Jan. 26 (Reuters)—Soviet explorers have begun a tractor and sled expedition from the Princess Astrid Coast into the Antarctic hinterland. Their route is toward the Pole of inaccessibility, the point farthest from the continent's coasts, the Soviet press agency Tass reported.

The explorers will advance through the mountains of Queen Maud Land and hope to blaze a trail to the Inner Antarctic Plateau across a 124-mile zone of glacier cracks.

Russians Name I. G. Y. Valley

LONDON, Feb. 14 (AP)—The Moscow radio reports that the Soviet National Committee for Antarctic Research has given a name to the Antarctic valley that runs 807 miles south from Olaf-Pruds Bay. It is the International Geophysical Year Valley.

MOSCOW, Jan. 13 (AP)—The Belgian Antarctic expedition has notified Viktor Perov, the Soviet polar flier, that one of the mountains in the belgique mountain range in the Antarctic is being named Perov Mountain, according to Tass, the Soviet press. Mr. Perov rescued stranded Belgian explorers in the Antarctic in December, 1958.

South Africa Looks South

By John Hughes
The Christian Science Monitor

Cape Town

Ten sun-loving South Africans have just exchanged the warm beaches and ocean currents of their land for beauty of a different kind in the icy wonderland of Antarctica.

They are members of South Africa's first scientific expedition to the frozen continent. The expedition has been despatched as a practical indication of South Africa's interest in Antarctica.

South Africa was one of 12 nations with a stake in the region which met in Washington recently at the invitation of the United States to hammer out the future of the area.

The expedition will be away about 15 months and is led by J. J. "Hannes" le Grange, a South African government meteorologist. Mr. le Grange was a member of the 1958 Commonwealth trans-Antarctic expedition led by Sir Vivian Fuchs.

The South Africans are taking over a former Norwegian base at Maudheim in Queen Maud Land, about 2,800 miles from Cape Town. They will run it primarily as a weather station.

Besides Mr. le Grange, there are five other meteorologists in the 10-man team, plus a doctor, diesel engineer for servicing generatoring plants and snow tractors, and two radio men who will maintain radio contact with the outside world during the party's isolation.

However, the party will carry out a research program covering aspects of geology, geomagnetics, glaciology, climatology, and physiology.

As a relatively small country, South Africa has not previously sent an expedition to Antarctica, but it is naturally much interested in developments in this neighboring continent to the south.

The South African Government in fact contributed to the Scott expedition of 1910 and it was at Cape Town that Captain Scott boarded the Terra Nova on his last voyage to Antarctica. South Africa has from time to time contributed to expeditions mounted by other countries and during the International Geophysical Year made weather observations at Marion, Tristan da Cunha, and Gough islands as part of the Antarctic program.

South Africa's interest in Antarctica is undoubtedly motivated also by strategic reasons. Indeed External Affairs Minister Eric H. Louw drew attention recently to the fact that Antarctica now is only a few hours flying time away from South Africa.

Mr. Louw pointed out that the "main, and in fact the only sure, sea route between the West and East is around (South Africa's) Cape of Good Hope." He said it is imperative that this sea route should remain open to the shipping of all nations.

Meanwhile, the Norwegian ship which called at Cape Town to take the South African expedition south also embarked a South African naval party planning a reconnaissance of Bouvet Island—a detour during the voyage to Maudheim. Accompanying this party was a retired U.S. admiral, Stevan Mandarich, attached as an observer from the United States Government.

SOVIET IN ANTARCTIC BID

Invitation to Australia for Joint Weather Research

MELBOURNE, Australia — Tass, the Soviet press agency, has reported that members of the Australian National Antarctic have been invited to join in work at two new weather stations being set up there by the Soviet Union, according to the Australian News and Information Bureau.

The Australian Government's Antarctic Division headquarters here has not yet indicated receipt or acceptance of the Soviet offer.

Ice Valley Found in Antarctic; Believed to Be 1,300 Miles Long

By WALTER SULLIVAN
The New York Times.

Soviet polar scientists believe that a tremendous depression cleaves the central land mass of Antarctica. It may extend under the South Pole.

The Russians have named it the International Geophysical Year Valley in acknowledgment of the role played by Americans, Britons and Australians in progressively bringing it to light.

Where the valley empties into the Indian Ocean it is filled by what appears to be the world's largest glacier. This mountain-flanked river of ice has been charted by the Australians for more than 200 miles. If the valley, or the down-faulting of which it is a part, extends to the South Pole it would be more than 1,300 miles long.

The ice river has been named the Lambert Glacier by Australia. Some of the mountains along it were photographed by seaplanes of the United States Navy in 1947.

The view that the feature extends far inland is based primarily on soundings of the ice sheet by a Soviet tractor party traveling to the Pole of Inaccessibility.

On the way, the group passed over 10,000-foot mountains buried under 3,300 feet of ice. However, as the Russians neared the Pole of Inaccessibility — the point farthest from the sea—the ice sloped down slightly and the land beneath it dropped radically.

A similar drop was observed at the South Pole by Sir Vivian Fuchs and his men on their trans-Antarctic journey in 1957-58. Twenty-five miles on either side of the pole the ice-buried land was 7,000 to 8,000 feet above sea level but at the pole its level dropped about 6,000 feet.

The ice-buried trough reported by the Russians is the second to emerge from the exploration of Antarctica during the I. G. Y. of 1957-58.

The first, discovered by a series of American tractor journeys, links the Ross and Bellingshausen Seas. A trough was also found running along at least part of the northern side of Antarctica's chief mountain system, the Great Antarctic Horst.

Participants in these American tractor journeys found evidence that Antarctica, once thought to be one great continent, was divided into three geological provinces, which would be totally or largely subdivided by open water if there were no ice. A chief province is the main mass of Antarctica, lying primarily in the eastern structure formed by verticle displacements of the earth's crust and is often paralleled by corresponding depressions.

The Russians have reported evidence that this is the nature of the I. G. Y. valley.

The second geologic province reported by United States explorers is, structually, an extension of the Andes Mountains. It includes the rocky spine of Palmer Peninsula and the Sentinel Mountains, which seem to continue the formation almost as far as the Horst.

Although the Andean formations differ fundamentally from the coal-bearing sediments of the Horst, it is possible that the two systems meet, binding most of Antarctica into a single continent.

Further exploration of this area is planned in the coming year.

During the last Antarctic summer (which coincided with the Northern winter) Edward C. Thiel of the University of Wisconsin made an airborne survey. He landed at about thirty-mile intervals to sound the ice and found no evidence of a deep gap between the two mountain systems.

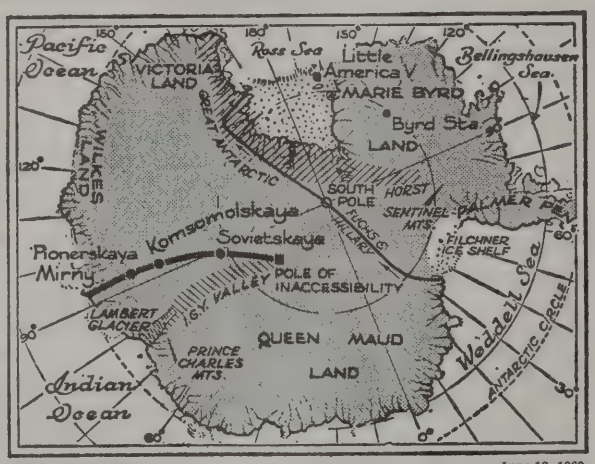
The third Antarctic province consists of the volcanic mountains of northern Marie Byrd Land. No active volcanoes have been discovered there. In one area, however, rocks have been found scattered widely over the ice in a manner that could not readily be explained. There is volcanic activity at McMurdo Sound and off Palmer Peninsula.

The ice soundings by American, British and Soviet tractor parties consisted of taking gravity readings every few miles and firing an explosion about every thirty miles.

The slight variations in gravity were indicative of local terrain features under the ice. The explosion echoes gave absolute depth, which could not be determined from gravity readings alone.

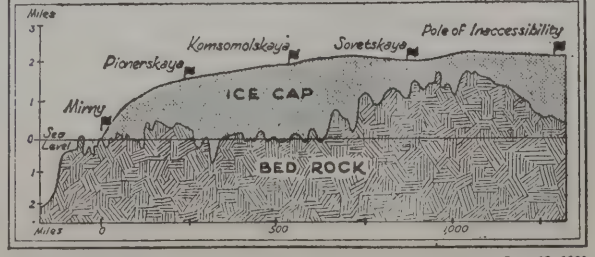
Both the Soviet and American readings suggest that the continent is in isostatic equilibrium —that is, that the rock has subsided to compensate for the added load of ice. If the ice melts the mountains would gradually rise about 2,500 feet.

Hence, according to Soviet estimates, the main body of Antarctica was one of the highest continents in the days when it was green with forests. It was this height, as well as the continent's polar location, that encourage glacier growth until, like a loaded barge, the continent sank under the weight of the ice.



The New York Times June 12, 1960

Soundings of the Antarctic ice sheet have disclosed what are thought to be two great troughs (diagonal shadings). One of them reaches from the Indian Ocean towards the South Pole, other joins the Ross and Bellingshausen Seas.



The New York Times June 12, 1960

The Soviet tractor journey from the Indian Ocean to the point in Antarctica farthest from the sea located 10,000-foot mountains buried under 3,300 feet of ice. Flags mark Soviet stations. Existence of great inland valley was suggested by the sharp descent of the terrain under the ice.

Moscow Plans Permanent Base For Antarctica

By Reuters

London

The Soviet Union announced Feb. 17 it will develop one of its Antarctic bases on a long-term basis and set up new "permanent intermediate bases" next year for fueling and supplying cross-continental treks.

The sixth Soviet scientific expedition to the Antarctic has already begun training and will replace the fifth expedition next December, Moscow Radio said, quoting Soviet polar explorer Mikhail Somov.

Research will be continued at Mirny, the main Soviet base, and at Lazarev, in Queen Maud Land. The latter was a long-term base for geological research and will increase in importance, the radio said.

It is planned to move the Lazarev base in 1962 from the ice shelf in Queen Maud Land to an area sheltered by mountains and suitable for the handling of heavy aircraft with intercontinental range. A meteorological outpost will be set up on the present site of the Lazarev base.

The Commission for Antarctic Research of the Soviet Academy of Sciences discussed the Antarctic plans and the possible use of jet aircraft in the continent.

It was proposed to equip such planes as flying scientific observatories, the radio said.

Soviet Opens Antarctic Post

MOSCOW, May 21 (AP) — Soviet polar explorers have opened their third temporary meteorological station in the Antarctic, Tass reported today. The Soviet press agency said the station was on the Drigalsky Ice Island in the Davis Sea.

Antarctic Marble

Two one-ton boulders of marble from an ice-free section of the Antarctic have been shipped to New Zealand.

Useless Island Is Coveted by Big Nations

By ROBERT C. MILLER

DECEPTION ISLAND (UPI)—Acre for acre Deception Island is the most internationally coveted piece of useless real estate in the world.

Three nations — Britain, Chile and Argentina — have established claims and taken up squatters rights on this barren, volcanic island 500 miles south of Cape Horn which was discovered by a 17-year-old American sea captain 140 years ago.

Deception lies at 62.56 south latitude, 60.34 west longitude on the outer fringes of Palmer Peninsula, named after Nathaniel Palmer, the youthful sealing captain who claimed to have discovered it.

Despite its proximity to the Antarctic continent, Deception has proportionately little ice and snow, or, for that matter, anything else. Not one blade of grass grown on its volcanic slopes, and nowhere on the 9-mile-wide crater is there a semblance of vegetation.

The name was given by Palmer, who first believed the island to be an extinct volcanic cone rising from the sea. He found it contained an excellent deep water bay formed where the volcano blew out its side, allowing the sea to convert the crater into a completely protected horseshoe harbor.

Sealers and whalers used the port for more than 100 years, and a whaling station was built close to the harbor mouth in 1906. German raiders also were reported to have used it as a refueling base and hideout in World War I.

Today the whaling station is a mass of ruins, rotting timbers and rusting machinery. Scattered about in the black, volcanic sand are whale bones, splintered boats and debris.

A bit up the hill is the old cemetery where some 500 men lie buried, most of them Scandinavians. All but one were whalers and sealers who died aboard ship or while working at the station. A polished marble shaft records the names of eight Norwegian seamen who apparently were lost with their boat in 1924.

The Norwegian-British whaling company—the Hektor Co. Ltd.—abandoned its whaling operations at Deception in the early '30's, and the British today use the old dormitory as their base of operations.

Records kept by the Hektor Co. show that a tremendous earthquake occurred in January, 1930, in which the harbor bottom dropped 15 feet, huge clouds of steam arose from the water and the hulls of anchored ships were blistered by the subterranean heat. Today sulphurous hot springs bubble up along the beach and everywhere there is evidence of recent volcanic action.

The Chilean station is manned by Air Force personnel whose base is across the harbor from the British. The Argentina Navy mans its base. Civilians hired by the Falkland Islands Dependencies Survey operate the five-man British base.

The British commander, 23-year-old Ian Jackson, also is the island's magistrate, harbor master, meteorologist and postmaster. In his two years as magistrate, Jackson has had but one case to try, that of a Norwegian seaman accused of killing a penguin. The case, conducted mostly by correspondence through the ship's captain, ended with Jackson fining the seaman 2 pounds sterling. ($5.60).

Study of Colorful Penguin Proves Aid to Science

By LYNN POOLE
The Johns Hopkins University

Probably one of the most fascinating creatures ever investigated by a research scientist is the Adelie penguin, known as "the clown of the Antarctic."

Dr. William J. L. Sladen of the Johns Hopkins School of Hygiene and Public Health has been studying the curious little creatures for more than 12 years and is an authority on the Adelie.

The penguin is actually a feathered bird, but it can't fly. A group of them is not called a flock, but referred to as a "crowd," probably because they look like little gentlemen in immaculate white tie and tails with their white fronts and black backs.

They are as gregarious and social as humans, and have very strong family ties. They swim like a fish with the unjointed flippers, moving 30 miles per hour in the water and leaping into the air like little porpoises shouting "aark, aark" as they do.

The peguim is found only in the Southern Hemisphere, and since it is difficult to preserve in captivity it can only be studied in its natural home.

During the past 12 years Dr. Sladen has spent a great deal of time in the desolate stillness of Antarctica for his studies. Because the Adelie is easy to catch, Dr. Sladen was able during one of his expeditions to mark 338 birds with a metal band and 1,360 others with paint. The light aluminum band was clamped around the upper part of the flipper. Each had an identifying number which could easily be read with the use of binoculars.

By following the movements of the birds over a two-year period, Dr. Sladen was able to disprove some of the notions people have had about penguins, and also to contribute some new information.

Investigators have not been certain whether the birds could actually recognize each other, whether they kept the same mate year after year, and whether they knew their own young and fed only their own chicks.

Dr. Sladen found that Adelies spend the winter at sea, hunting food — mostly small shrimp called krill — then in the spring move as far as 200 miles to the breeding ground, which is known as the rookery.

During this trip they sometimes have to walk in their waddling fashion as far as 60 miles over the ice. Each year they return to the same rookery. Dr. Sladen found they are faithful to their mates year after year, and stick to the same nest site even if it is still covered with ice and snow when they arrive.

In three weeks two eggs are laid. Then, because they have not eaten for weeks, the male and female take turns sitting on the eggs while the other goes off to sea to get food. They change places every two weeks until the 35-day incubation period is over.

Until the chicks develop plumage the parents feed and care for them. Dr. Sladen also learned that parents care only for their own offspring. Then, when eight or nine weeks old, the chicks are abandoned.

Some investigators had thought parents give the young swimming lessons, but Dr. Sladen found they learn by themselves. He describes their first attempts at leaping out of the water as clumsy and "amusing to see."

Why study penguins? Dr. Sladen is working on a cure for the disease called aspergillosis, a common infection of waterfowl and game birds sometimes found even in man. In studying how penguins keep warm he has discovered a unique system of blood-vessel counter current exchange which prevents loss of heat thru their feet and flippers.

He is also trying to find out how they get along with only a salt water supply. He hopes he may learn some hints on survival in very cold climates, and is even using the penguin for research on the epidemiology of the common cold in isolated communities.

24 TO STAY IN ANTARCTIC

Argentine Navy Abandons Attempt to Relieve Base

The New York Times.

BUENOS AIRES, Jan. 29— — The Argentine Navy has given up attempts to relieve its Ellsworth Base in Antarctica this year after four unsuccessful attempts to break through the pack ice in the Wadell Sea.

As a result, twenty-four men, including one United States scientist, will have to remain through another Antarctic winter at the former United States station which was ceded to Argentina last year.

The Argentine Antarctic Institute announced that the navy icebreaker San Martin had found the ice pack impenetrable and had not been able to get any closer than 170 miles to Ellsworth and near-by General Belgrano Station.

Ellsworth is supplied with two years' food and fuel and the men there are in no danger, it was announced.

GALES HIT ANTARCTIC

Scientists Trapped at Posts —Winds Fell Power Lines

WELLINGTON, N. Z., May 26 (Reuters)—Gales in the Antarctic trapped scientists in their laboratories, tore down power lines and blew away instruments at a joint United States - New Zealand research station there this week, it was reported here today.

A dispatch from New Zealand headquarters at Scott Base on the Ross Sea said the gales had raged around the scientific station at Cape Hallett, 400 miles away from the base, for two weeks.

The climax came on Monday and Tuesday when hurricane-like winds trapped men in the buildings they were in.

Instruments recorded winds of 120 miles an hour before they blew out. The New Zealand scientist in charge of the station, R. B. Thomson, said the stations had felt like a ship at sea.

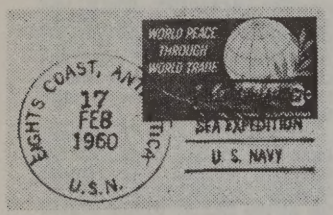
Vanished Eskimo Tribe

The vanished tribe of Dorset Eskimos 2,000 years ago were making flint tools and cooking game on Southampton Island in Hudson Bay.

Rare "USS Glacier" Deep Freeze Covers

An especially interesting Antarctic cover has been submitted by J. Edgar Hill of Reading, Mass., indicative of the interest and the cooperation of service personnel stationed in the remote areas of the world.

Accoridng to Mr. Hill, this cover was posted by personnel from the icebreaker "USS GLACIER" (ABG-4) February 17 while cruising in Bellingshausen Sea in Project Deep Freeze 60. The vessel made land at Eights Coast and set up a post office, accepting a limit of four covers per man on the expedition—total under 2000 covers.



The neat, carefully applied handstamp reads within the circle "EIGHTS COAST, ANTARCTICA / 17 / FEB / 1960 / U.S.N." The legend between the four short bars is "BELLINGSHAUSEN / SEA EXPEDITION / U. S. NAVY".

The bright blue rubber-stamped cachet at the lower left is a circle enclosing a polar projection, two penquins and "OCEANOGRAPHIC GROUP / DEEP FREEZE / 60-USARP" at top and bottom.

"No one had been in this area since 1783, and it was found that maps are as much as 20 miles in error; new ones must now be made for this district," Mr. Hill added.

USCS Offers Free Ice Island T-3 Cachet

The Universal Ship Cancellation Society is repeating an earlier offer to provide cachets on Arctic expedition covers. This time they will be serviced at the USAF floating Ice Island base in the Arctic Ocean, through a member on duty there.

Collectors may send not more than TWO stamped, addressed covers each with requests for information about the society. The replies will be returned from floating Ice Island T-3. Certain conditions must be observed:

Maximum of two covers per person.

Each cover must be prepaid at the first-class rate.

Covers must be completely addressed, well to the lower right corner of the envelopes.

Covers should be sent to Jack R. Treutle, Box 504-L, Keyser, W. Va.

The Australian News and Information Bureau here has received a four-stamp pictorial series issued by the Australian Antarctic Territory, a dependency. It publicizes Australian participation in explorations to the South Polar regions.

A photograph of the first three men to reach the South Magnetic Pole (on Jan. 19, 1909) illustrates a 5-pence brown. The three were Tennant William Edgeworth David, otherwise known as Sir Edgeworth David (1858-1934), Australian; Sir Douglas Mawson (1882-1958), British scientist and a university professor in Australia, and Alastair Forbes MacKay, Scottish surgeon and biologist, who was born in 1878. He became separated from his companions while on an Antarctic expedition in 1914 and was never heard from again.

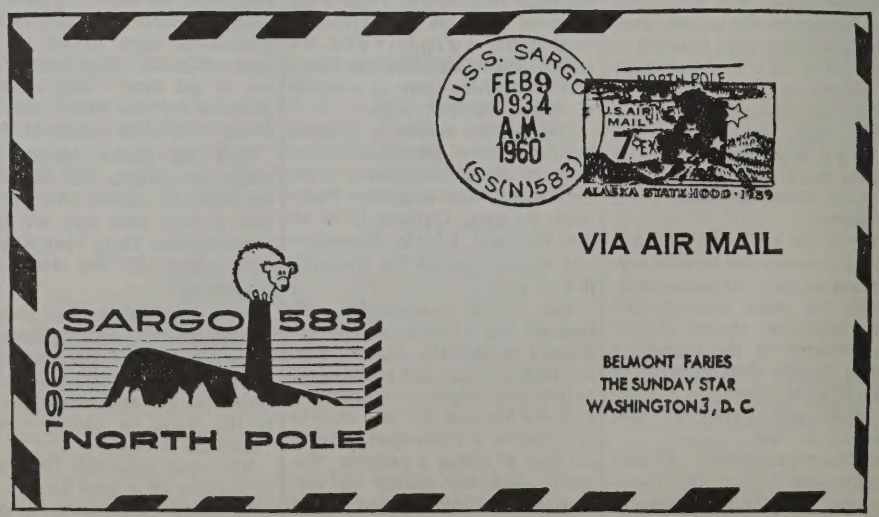
"First Attainment of Magnetic Pole" and the dates, "1908-9," are inscribed on this stamp.

A map of the Antarctic, with men and a tractor at work in the foreground, is shown on an 8-pence blue. A 1-shilling blue-green shows a sled and dog team, with an iceberg and polar map as background. A 2-shilling, 3-pence green shows penguins in icy environs below the same map.

The Falkland Islands Dependencies had overprinted stamps of the Falkland Islands in 1944 for Graham Land, South Georgia, South Orkneys, and South Shetlands. A map for the group was issued in 1946, followed in 1954 by a set portraying exploration ships which had been used in the occupation of the islands. An overprinted short set appeared in 1956 for the Trans-Antarctic Expedition of 1956-58.

Two values, 10 and 30mk, will honor the XII General Assembly of the International Union of Geodesy and Geophysics to be held in Helsinki. The stamps will be issued on July 26, 1960.

BIRDS, ANIMALS, ICEBERGS AND A MAP, to delight the heart of any topical collector are shown on the recently issued six French Antarctic stamps on the above cover. The cancellation is dated Terre Adelie February 1. Other Polar covers submitted by Mr. Schneider showed cancellations of Scott Base, and Wilkes in the Antarctic, and the "USS STATEN ISLAND" in the Arctic regions, as well as helicopter flights in Terre Adelie.



This cacheted cover was canceled on the nuclear submarine Sargo when it broke through the ice and surfaced at the North Pole on February 9.

Polar Triumphs

By Robert C. Cowen
The Christian Science Monitor

Within this century, both poles of the earth have been conquered and the explorers among us are looking outward to the stars. It is relatively easy now to land an aircraft at the South Pole or emerge through the northernmost ice in a submarine. But in its day, the attainment of either pole on foot was as challenging an adventure as the forthcoming exploration of the moon.

In **A History of Polar Exploration** (New York: W. W. Norton & Co. 374 pp. $5.95) L. P. Kirwan places the polar epochs in the perspective of history. From classical times to the present, he outlines men's continuing interest in and exploration of two of the earth's most inaccessible regions.

Mr. Kirwan, who is director and secretary of the Royal Geographic Society, has covered his ground with reasonable thoroughness and scholarship for a book that is tightly written throughout.

Although some historical uncertainties may have been glossed over and many colorful details omitted, Mr. Kirwan's book is still authoritative history and an exciting adventure story. It outlines the panorama of exploration, several aspects of which have been treated by a number of more specialized books released in recent months.

* * *

For example, **Race For the Pole,** by John Edward Weems (New York: Henry Holt & Co. 240 pp. $4.50), focuses attention on Robert E. Peary's heroic efforts to be the first to reach the North Pole and Dr. Frederick A. Cook's questionable challenge of his eventual success. Cook's claim to priority sparked one of the celebrated controversies of polar history. Mr. Kirwan quickly dispenses with Cook's claims as spurious. Mr. Weems finds that the judgement isn't quite that clear-cut, although on balance he too distrusts Cook's story. He presents a careful statement and weighing of the evidence on both sides of this historic debate as well as a vivid account of the exploits of the two men themselves.

* * *

The Ice Was All Between, by T. A. Irvine (New York: Longmans, Green & Co. 216 pp. $4.50), is in a sense a modern sequel to the great north polar explorations, especially to the historic search for the Northwest Passage. It is written by a Canadian naval officer whose research ship, the HMCS Labrador, became the first deep-draft ship to negotiate this passage during her maiden voyage. Although the feat does not rank with the great over-ice explorations, it caps these earlier achievements as have the under-ice journeys of atomic submarines.

Science Pushes Back the Unknown

IGY: YEAR OF DISCOVERY. The Story of the International Geophysical Year. By Sydney Chapman. Illustrated. 111 pp. Ann Arbor: The University of Michigan Press. $4.95.

By WALTER SULLIVAN

SYDNEY Chapman is sometimes described as the greatest geophysicist of our times, but to the public he is best known as leader of the most extensive scientific effort in history, the International Geophysical Year. This handsomely illustrated book is based on four lectures which he gave at the University of Michigan in October, 1958, as the I.G.Y. was drawing to an end. Roughly half of its pages are devoted to photographs and drawings.

To geophysicists—students of the earth and its environment—Mr. Chapman is the man who, with various associates, created a "model" to explain the relationship between flares on the sun and the complex disturbances on earth that follow them. What he built was a magnificent edifice of scientific theory, based both upon observation of what was going on in space and within the earth, and upon laboratory knowledge of the behavior of atoms and their constituents. One of the chief tasks of the I.G.Y. was to test the validity of this model.

Mr. Chapman retired several years ago as Sedleian Professor of Natural Philosophy at Queen's College, Oxford. Since then he has spent a large part of his time at the Geophysical Institute of the University of Alaska and the High Altitude Observatory of the University of Colorado. The former took him to the high latitudes where he could study, at first hand, the northern lights that form an important part of his model. In the high altitudes of the Rockies, he was close to the sky.

This book discusses primarily the problems attacked during the I.G.Y., rather than the results. It is divided into sections dealing with such subjects as the solid earth, glaciers, oceans, the atmosphere, the aurora, air glow, geomagnetism, cosmic rays, the sun and the organization of the I.G.Y. Having been the chief diplomat, as well as the chief scientist, of the I.G.Y., the author deals gingerly with the political problems that beset it. There is no mention of the prolonged discussions regarding publication of Soviet and American satellite plans and results, but he does discuss the withdrawal of Communist China at the last moment.

The book is at its best in the areas with which Mr. Chapman is most familiar. His explanations of the chemical and physical processes in the upper air, producing the air glow, the aurora, the radio-reflecting layers, and magnetic changes on the earth, are simple, understandable and enlightening. Despite his scientific sophistication, he patiently makes each point clear to the layman.

While, in general, he does not attempt to summarize I.G.Y. achievements, he does describe the most dramatic discovery of the eighteen-month "year"—the Van Allen Radiation Belts, named for James A. Van Allen of the State University of Iowa, who first identified them on the basis of United States satellite data. Mr. Van Allen has written a foreword to the book. Near the end is a section on the growth of natural science over the centuries.

ALASKA BOUND, by Kathryn Winslow [Dodd, Mead, 281 pages, $4.95].

Reviewed by
Alfred C. Ames

Here is the complete, nonsense guide to Alaska. The facts about the new state are so remarkable that a writer about Alaska can be both rigorously informative and highly romantic at the same time.

Kathryn Winslow, the Chicago suburbanite who has made Alaska her subject of special knowledge, has had the courage and good judgment to let the facts about Alaska convey the excitement of her theme. There is no gush, and little rhetoric in "Alaska Bound." For the most part, the book is filled with precise details about roads, rail and plane routes, hotels, schedules, and prices.

The author begins by explaining how the state consists of eight distinct regions, decidedly separated from each other by terrain and climate. Only at a considerable distance can Alaska appear at all uniform.

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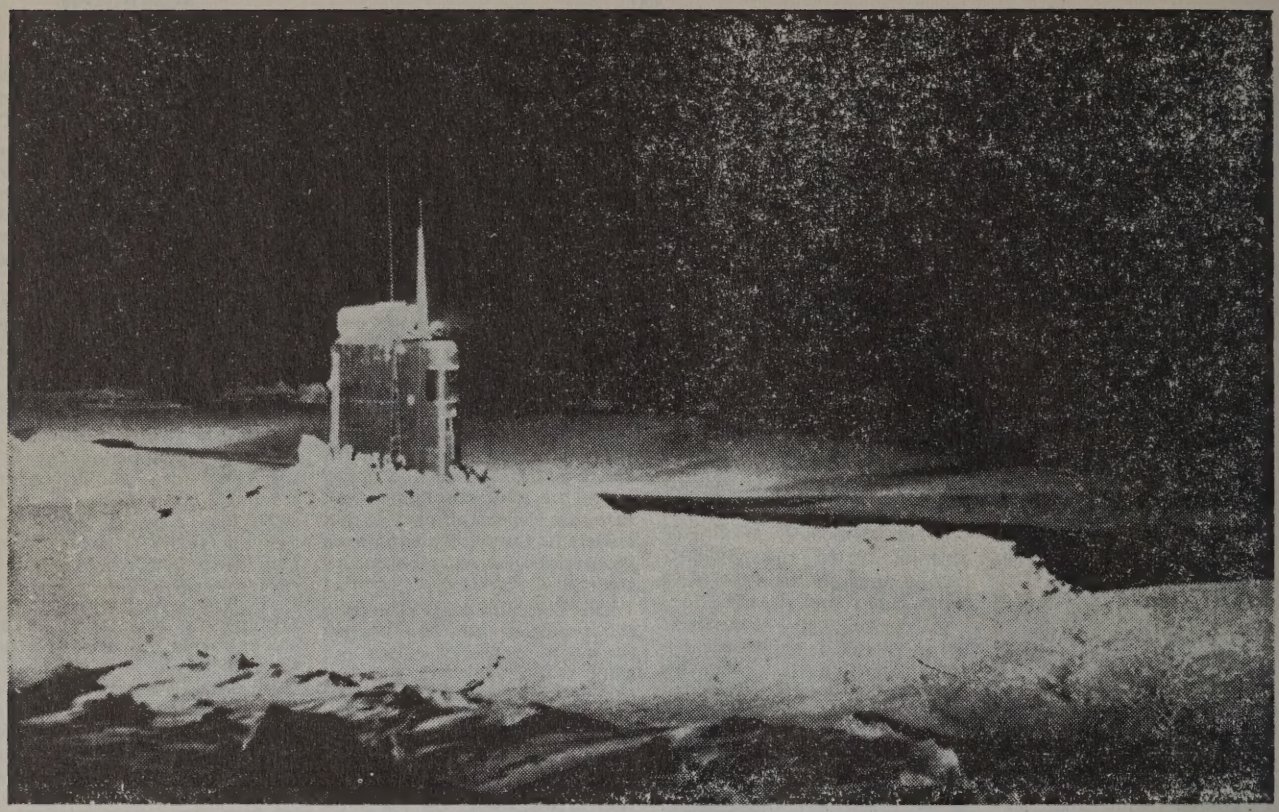
There are tremendous differences between the forested islands of the southeast and the arctic tundra of the northern shore, between the central interior and the Aleutian Islands.

Once she has us oriented, Miss Winslow proceeds to tell in detail where, how, and at what cost one can get around Alaska—first by land, then by sea, and finally by air.

Precise figures for hours of departure and prices of meals and tickets are no doubt subject to change. But the services and the relative costs—which run high in Alaska—will doubtless remain for a considerable time much as they are reported here.

This is the book to study before you go, take with you when you go, or to read with rueful pleasure if you cannot go at all.

The voyages of the atomic submarine Skate beneath the Arctic ice are described by the craft's commander, James Calvert, in "Surface at the Pole." Commander Calvert took the Skate to the Arctic in August, 1958, and while cruising beneath the ice surfaced nine times, proving that the Arctic was practical for regular operations. He took the submarine to the Arctic a second time in the dead of winter with orders to force her way deliberately through thin spots in the solid ceiling of ice. Again the Skate was successful, becoming the first ship in history to reach the surface in the silent vastness of the North Pole. The book will be published Aug. 1 by McGraw-Hill.



U. S. Navy

SURFACING AT NORTH POLE — The nuclear submarine Sargo emerging from ice pack at the North Pole Feb. 9.

TOP OF WORLD: Two men from nuclear submarine Sargo raise Hawaiian flag at North Pole. They are Lt. Francis L. Wadsworth (left) and Harold Meyer, whose homes are in the 50th state. The Sargo cruised 2,744 miles under Arctic ice.